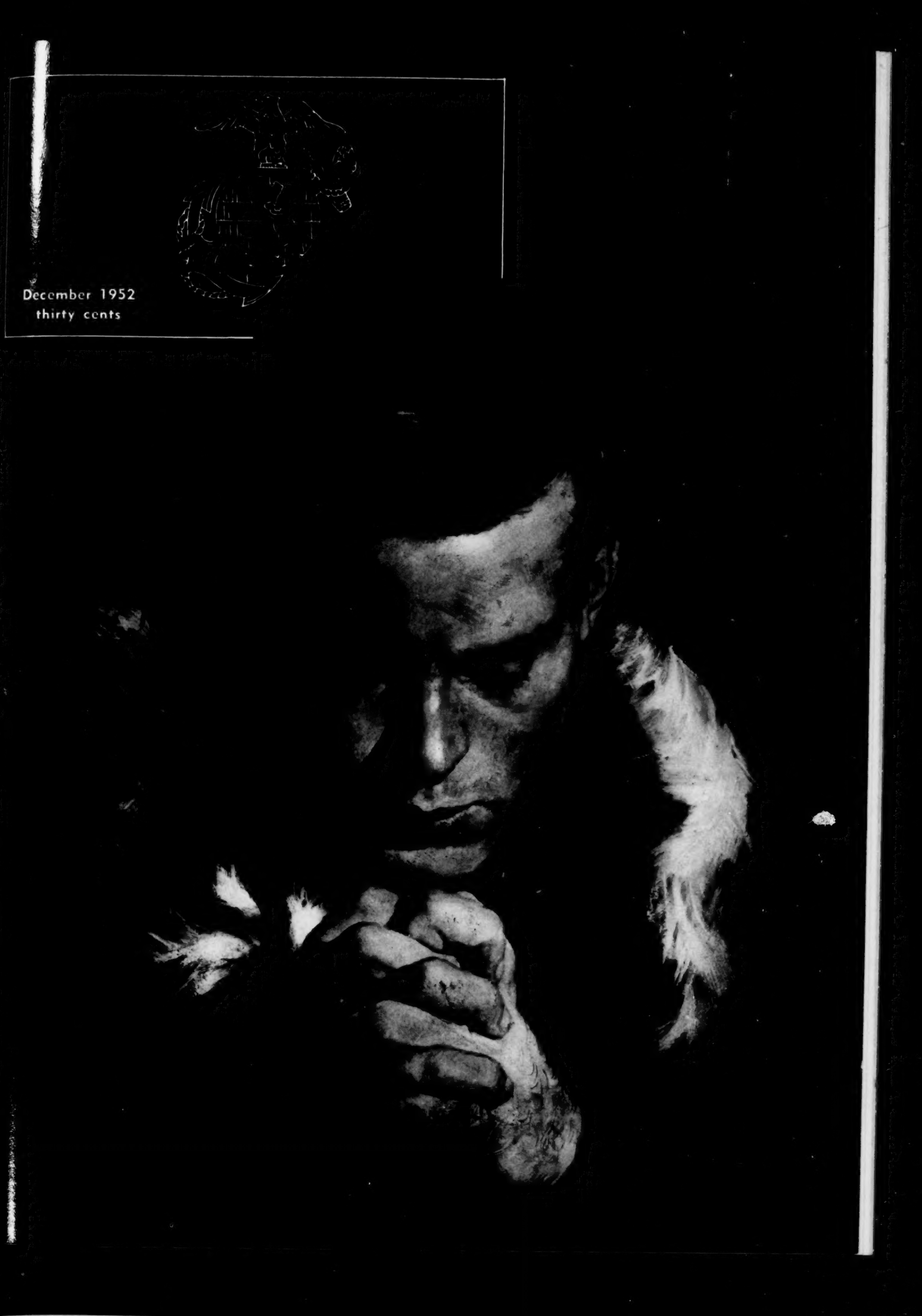

December 1952
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Marine Corps Gazette

DECEMBER 1952
NUMBER 12
VOLUME 36

PROFESSIONAL MAGAZINE FOR UNITED STATES MARINES

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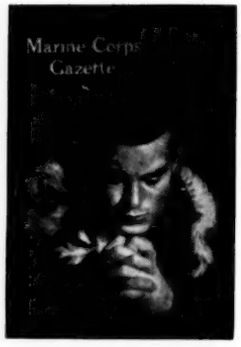

COVER

Our cover this month, by Artist Tony Kokinos, is dedicated to all the men spending Christmas in the bitter cold of Korea's frontlines. Perhaps in no other season of the year is a fighting man drawn more closely to his Creator and to his loved ones at home, even though the star in the east turns out to be an illuminating shell, and "Peace on Earth" seems a mockery along the battle-scarred ridges. But prayers are born of faith; and with faith in God and freedom's cause, we paint our dreams for Christmas—and for the New Year.

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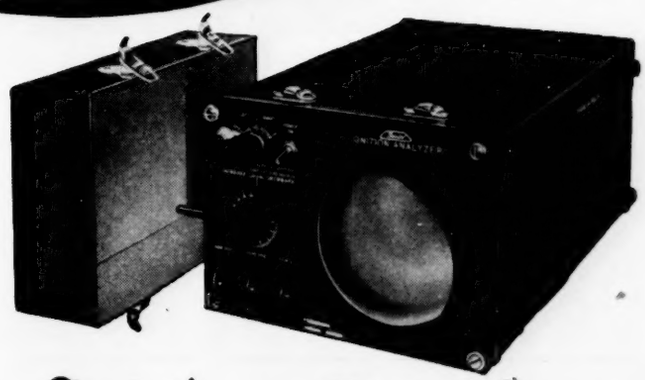

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TO THE EDITOR

Message Center

Improve Appearance . . .

DEAR SIR:

I would like to offer several suggestions that might help to improve the appearance of Marine Corps personnel and at the same time be functional. In light of my experience and those of fellow Marines, I think there is a need for the following modifications and additions to our uniform issue:

(1) Socks, woolen, light weight, dark brown, that are presently in use have the disadvantage of not being held in place around the wearer's leg due to the lack of a suitable elastic. Too often when Marines are seated, the sight of these socks ruins the military appearance of the uniform. A durable elastic and a shorter sock would do much to correct this.

(2) A need exists for a better overcoat. I suggest a woolen garment that is a bit longer than the green blouse, with a wide collar that could be turned up to protect the neck and face in cold weather. A fingertip length coat has the advantages of being serviceable in cold weather and would not require a great deal of room in a seabag. The present raincoat (with liner) does not afford ample protection in cold weather. It is a fine raincoat, but that's all.

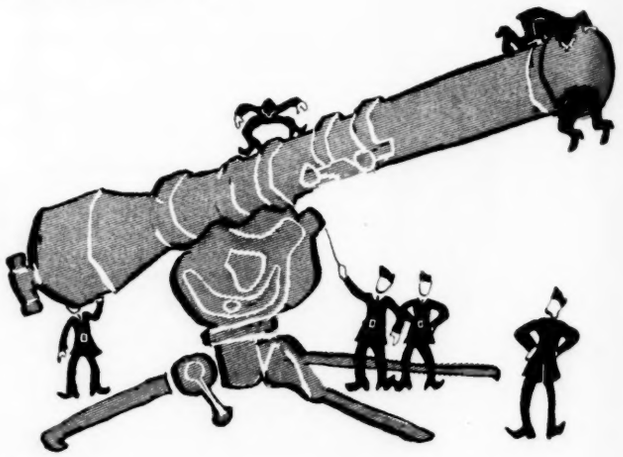
(3) Much has been said about the pros and cons of the campaign hat. I hope to see a revival of the campaign hat. It would do much for the appearance of personnel and it has varied uses.

With the realization that great bodies move slowly, I hope that some cognizance will be taken of the above suggestions. The need is quite evident.

I. R. SCHAEFFER,
Cpl, USMC
Jacksonville, Fla.

Each month the GAZETTE pays five dollars for each letter printed. These pages are intended for comments and corrections on past articles and as a discussion center for pet theories, battle lessons, training expedients, and what have you. Correspondents are asked to keep their communications limited to 200 words or less. Signatures will be withheld if requested; however, the GAZETTE requires that the name and address of the sender accompany the letter as an evidence of good faith.

More School on 75s . . .



DEAR SIR:

My heartiest congratulations to the GAZETTE and a most sincere "well done" to 1stLt Earl R. DeLong for the publishing and writing of *75s Up*. I am sure all junior officers and a good portion of enlisted personnel will benefit from that well presented article.

I herein offer the following comments, not in criticism, but as a supplement thereof:

Incorporate in the curricula of officers' schools, etc., the tactical employment of the 75mm recoilless rifle. During this writer's tour of the Korean conflict it was observed that few junior officers were familiar with certain important aspects of the 75. Consequently, they were uncertain of how and when to use those excellent rifles, thereby neglecting to utilize fully a great source of ready firepower. The sites selected for the guns were tactically unsound, and the protection given was inadequate. The last was responsible for the squad changing its armament from one M1 rifle per squad to a substantial amount more.

At this stage someone will raise the question, "Is it not the platoon leader's job to advise company-level officers?" That's a good question, but here's the hitch:

As was learned in *75s Up,* the platoon is divided into sections, one section with each of the two forward battalions. That system at times went down to company level with the sections being divided into squads and a squad to each of the two forward companies. Now, with the regiment's four guns separated by hundreds and thousands of yards, it is not too difficult to visualize the platoon leaders' inability to supervise,

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assist, or advise personally the employment of each gun.

I would like to say that the incidents mentioned above were the exception rather than the rule. The persons involved, like the good Marines they were, showed their presence of mind by rapidly sensing and rectifying their misjudgments. But they did happen and, because of it, a dozen or more Communists were granted the privilege of living a little longer.

Having been a 75 squad leader under the command of Lt DeLong and, at a later date, an infantry squad leader in the 1st Bn, 7th Marines, I have been able to view the 75 from several angles and, therefore, feel reasonably well qualified to make these observations.

BRUCE I. CHAPPLE
SSgt, USMC
Norfolk, Virginia

NCO School in Korea . . .

DEAR SIR:

In regard to MSgt Charles V. Crumb's article on a school for Staff NCOs (August 1952), it is my contention that the Corps has definitely taken measures for such schooling and it is well beyond the incipient stage. True, senior enlisted personnel should have received a thorough knowledge of military subjects before attaining their present grade, but that is water under the bridge. It is pretty difficult to sit an "Old Gunny" in a classroom and expect to put anything across to him, especially when the instructor is probably a junior officer some fifteen or more years younger and with only one-tenth of his time in service.

The solution lies in making this knowledge available to personnel while in the early part of their military career. This will enable those serving under and with the staff grades to benefit by their previous schooling.

The need for better trained Staff NCOs is of such prime importance, that even here in Korea a school has been set up for fourth and fifth paygraders. And to prove the importance of the school's curriculum, men selected to attend are often taken right from the front.

The school is held in the division command post area and the course lasts for one month, of which one week is spent in the field. Each class is set up on a company T/O, and each day new assignments are made to fill the various billets from fireteam leaders up to company commander.

The classwork covers every conceivable military subject. There isn't just a smattering of each.

The week in the field found us setting up defensive sectors, with companies in the night and day assault, plus tactical employment of T/O weapons, mine clearance, compass marches, and other subjects too numerous to mention.

Completing the course is a battery of tests covering every subject studied. The administrative test was considered as difficult as that taken by technical sergeants for promotion to the first pay grade.

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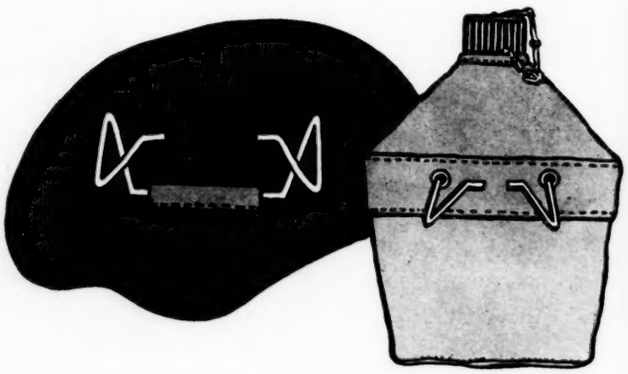
JIM MINIHAN,
Sgt, USMC
Korea

Canteen Cover Idea . . .



DEAR SIR:

Enclosed are two sketches showing suggested changes in the manufacture of canteen covers. I believe the suggested cover would have the following advantages over that of present manufacture:

1. Elimination of web material presently securing the hooks to the cover, resulting in cheaper manufacturing costs; elimination of repeated re-sewing or surveying covers from which the webbing has torn; and elimination of surveying new covers because of hooks being placed in backward during manufacture, or for reason of broken hooks (replacement hooks are easily inserted).

2. The weight of the canteen would be suspended *down* from the belt rather than hanging at an angle.

The cover shown in the drawing was hand-made from a surveyed cover, using eyelets from an old cartridge belt. It has been subjected to field trials and has outlasted two of the present canteen covers, and shows few signs of wear.

Any comments would be appreciated.

ROY E. BABBIN,
Cpl, USMC
Rodman, Canal Zone

ED NOTE: Sounds good to us. Any objectors?

SRB Check List . . .

DEAR SIR:

The writing of this letter is prompted by the article, *Conduct Marks in the SRB*, in the September issue of the

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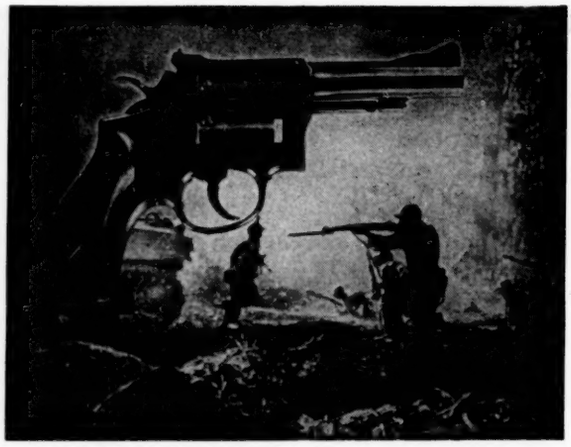

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Gazette. This article pointed out a very serious Marine Corps administrative problem, but did not offer a complete solution. I submit herewith a solution to the problem that could be used by the commanding officer of any organization.

Since it is impossible for the company commander to know all the men in his company well enough to make a true and fair evaluation of each man when it comes time to make out fitness reports and to make conduct and proficiency entries in the service record books, the company commander must necessarily rely on the platoon commanders for assistance. This system causes a man to be graded by the officer who has the closest contact with him, but at the same time shifts the burden of evaluating and marking to the shoulders of an officer with far less administrative experience than the company commander. To solve this problem the company commander must devise a system for marking, and instruct his platoon commanders in detail on how to use the system. This will cause every man in the company to be graded by the same method.

The company commander should have subsidiary records at his fingertips that will help him to fill out the fitness report and to mark the SRB of a man who is being transferred, discharged, etc. The occasion often arises where the platoon commander is not available for consultation at a time when a service record book must be marked and sent on its way.

My idea is to mimeograph a form that includes fitness report, conduct, proficiency, and training marks. There is a very definite relation between all these markings. The platoon commander could execute one of these forms each month for every man in his platoon. It is granted that fitness reports are not required on men below the rank of sergeant, but such markings would be of assistance in arriving at SRB marks.

By having this combined form filled out on each man every month, the company commander always has a current individual record from which he can transcribe true and carefully evaluated markings. This monthly form can also be used to increase the efficiency of the command by causing the platoon commanders to show each man his completed form each month. This will inform the man of his shortcomings, and give him a chance to improve before it comes time to make a "pay run" on marking.

My idea for such a form and the instructions for executing it are attached hereto. I have omitted the list of technical subjects referred to in the instructions because they differ with every military occupation specialty and rank. A list applicable to any man in the Marine Corps can be found in the MOS Manual.

Frederick W. Baker, Jr.,
Maj, USMC
Quantico, Va.

Ed Note: Space did not permit the publication of the form. Interested readers may contact the major at Schools Demonstration Troops, MCS, Quantico, Va.

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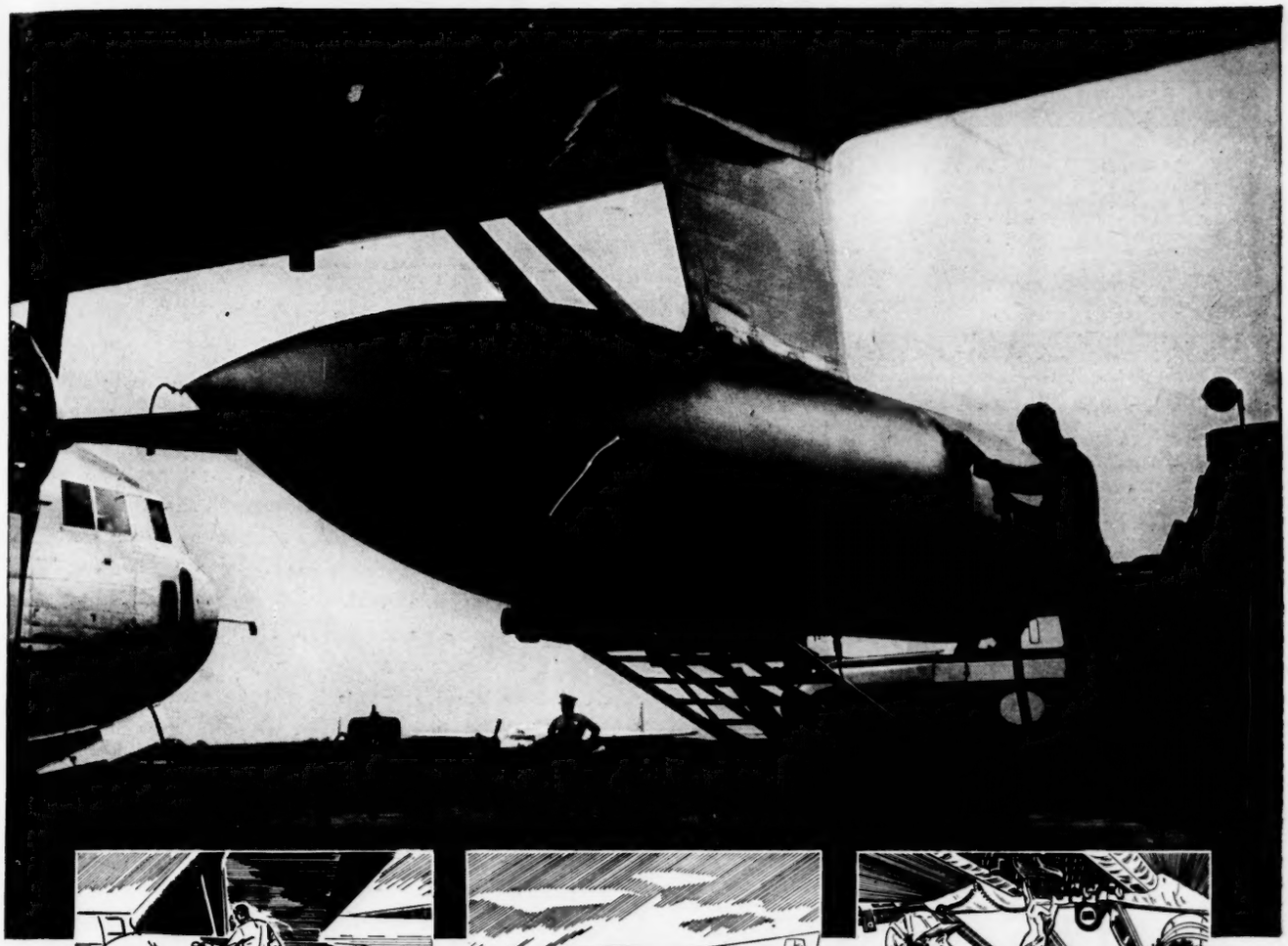

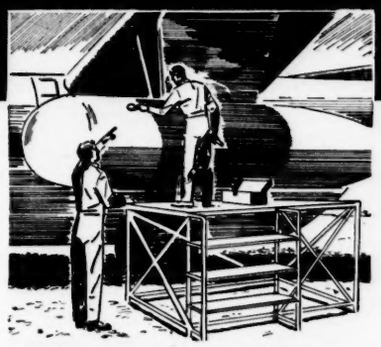

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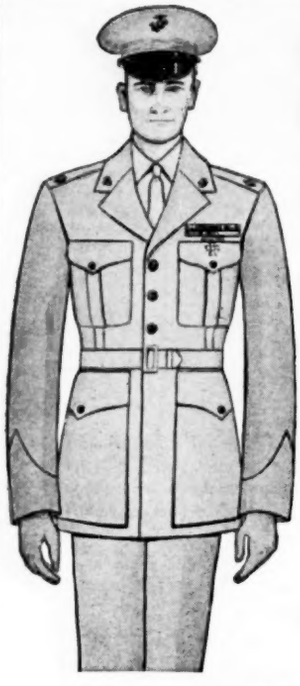

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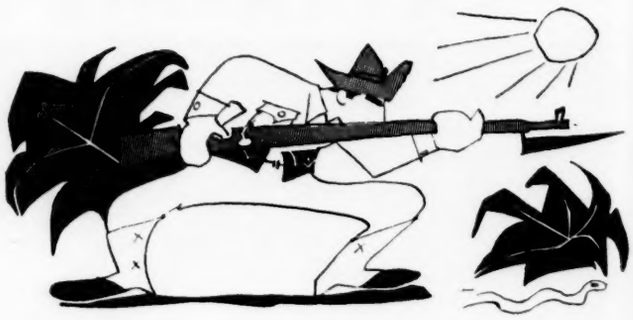


DEAR SIR:

I would like to comment on your informative article in the June issue of the *Gazette,* pertaining to the origin and historical background of the now-obsolete campaign hat.

I am one of the diehards that wore the hat with pride, having worn my first one over thirty years ago when a rakish, tilted hat with the emblem signified that the wearer was only one person—a Marine and a good one, too. That was back when the Corps numbered 15,000, including all hands and Jiggs I, if you remember this famous bulldog.

But that is all ancient history now. No one, not even we so-called old timers, will deny that we have a much better outfit now than in the old days when we were fighting the Cacos and Dominicans in the "banana wars" with the help of our Springfields and a few broken-down BARs and Lewis guns.

That was the heyday of the old campaign hat. Now it is just an eye shade for a few coaches and team men on the various ranges. Anyone who has had the pleasure of seeing the late Gen Butler cock his old campaign hat back on his head and let out a roar, will know what I mean about the hat giving one distinction that no sun helmet or garrison cap can ever confer on the present-day Marine.

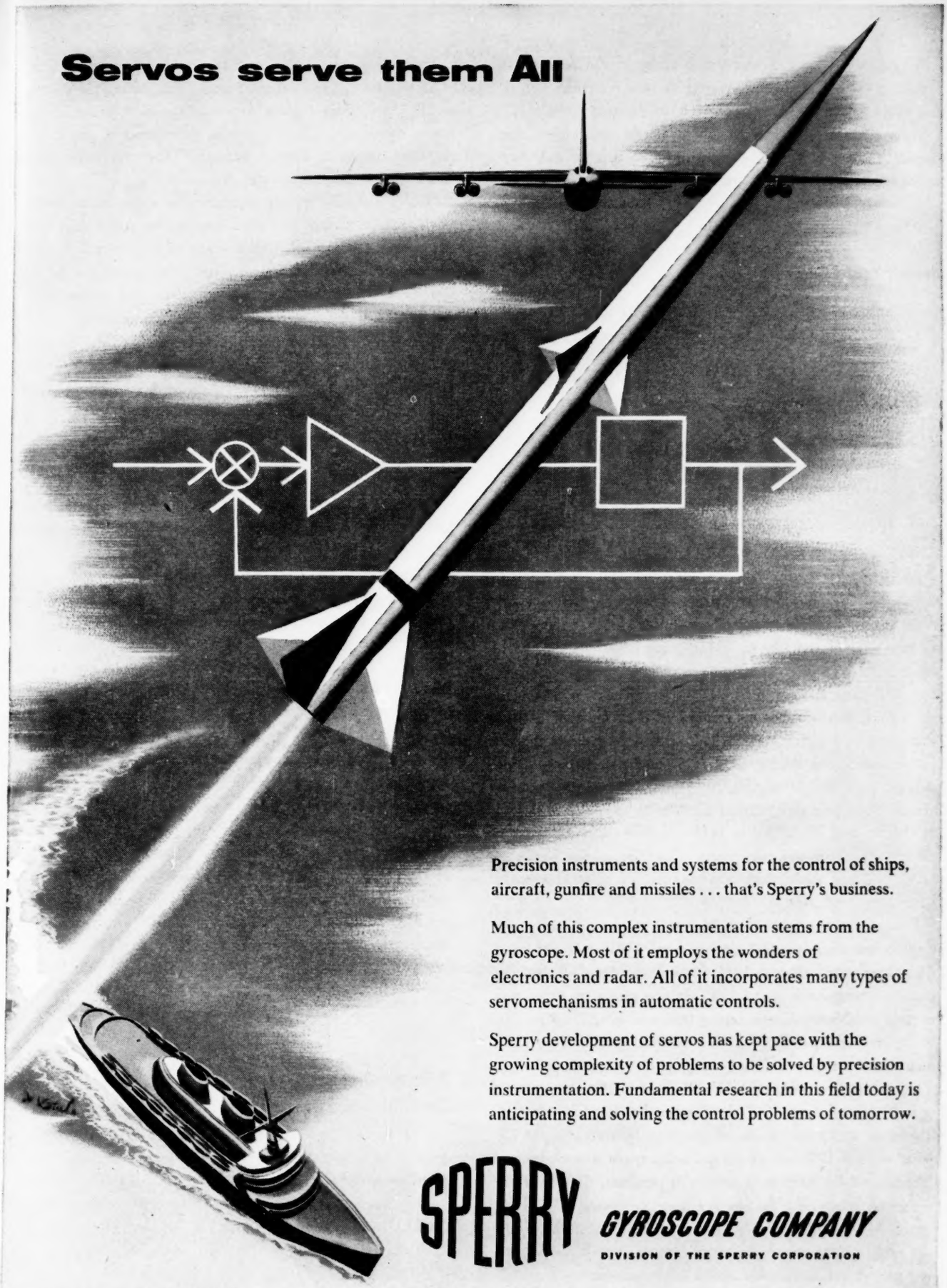
I was in Shanghai in '32 when sun helmets became the uniform of the day. And to add insult to injury, one company of the old Fourth Regiment was decked out in shorts, short-sleeved khaki shirts, half-length woolen stockings—à la summer uniform of the Coldstream Guards, who were stationed there at the time. This company certainly took a beating until the powers that be rescinded the order.

Later, over in Olongapo and Cavite, we reverted to the old hat again, and I wore same until we drew sun helmets when we shoved off for Iceland with the 5th Defense Bn.

I will agree that when the twelve hats that rest on the shelves at the QM are sold, it will be the last of an era that, to we oldtimers, was the best and the most adventurous of any we have spent in the Corps.

Until we produce Marines in the present day Corps like John Quick, Edson, Carlson, Diamond, and a host of other people over the years that wore the old hat and swore by and

Servos serve them All



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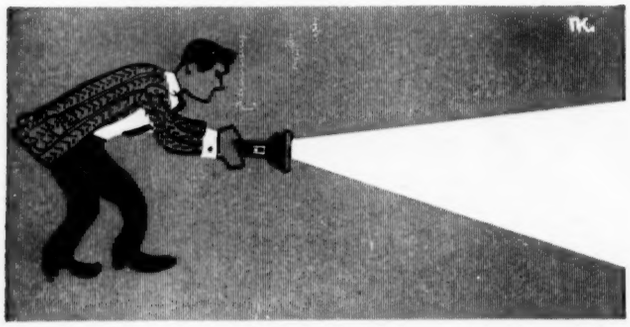
at it numerous times, I will string along in the belief that some day we will again be wearing the old campaign hat, if not at home maybe out in the islands, or Panama and Cuba.

It is the only answer to a sharp liberty uniform in the tropics, and the only number-one protection that we ever had against heat stroke or prostration.

VERNON B. DEBNAM,
MSgt, USMC
Hagerstown, Md.

Search Your Conscience . . .



DEAR SIR:

In defense of the Marine Corps policy on commissioning standards, the following information is offered — based upon three main factors that have been under attack. These are the age requirements, the GCT minimum score, and the physical requirements.

1. The standard that men must be less than twenty-seven in the fiscal year in which commissioned. This means that all men who were born after August 1925 would have been eligible for commissioning during fiscal 1952, and all men born after August 1926 will be eligible for commissioning during fiscal year 1953. These men entered the Marine Corps in 1943 and 1944, and were discharged in 1945 and 1946. Upon discharge their average age was twenty-one. The Korean war began in July 1950, one month after the majority of these men could have completed college.

Men who were born after August 1924 would have been eligible for commissioning during fiscal 1951, and men who were born after August 1923 would have been eligible for commissioning during fiscal 1950. In this group are those who entered the Marine Corps during 1941 and 1942.

Did the Marine Corps have a program available to these men whereby they could earn a regular or reserve commission? The answer is conclusively, "Yes!"

In 1946 and early 1947 the Platoon Leaders Class was reorganized and procurement officers were recruiting in the colleges in early 1947. A special pitch was made to veterans and members of the Reserve to enter this program. If a man had served on active duty for one year or more during WW II he could skip the Junior course and enter the Senior course with the rank of sergeant. This meant one six-week summer training period and the man would be commissioned upon graduation from college, if he made the grade.

This appeal was made not only to Marine veterans, but to all members of the Armed Forces. Yet, during the summer of 1947, only fifty—repeat fifty—college men in the United States signed up. Of this group, approximately seventy-five per cent comprised former Marines. The rest were Navy, Coast Guard, Air Force, and Army.

Now admittedly we are restricting out discussion to men in the college ranks. However, Marines on active duty without a college education have always had opportunity to meet age requirements for commissioning. Also, men who did not attend college after discharge in 1945 had opportunities through organized reserve units to earn commissions.

Today complaints are heard from the men who attended college during 1945-1950. Why? An answer is given by SSgt Long in his article, *Don't Sell Experience Short* (April 1952). He wrote ". . . former Marines did not enroll in any of the several programs which would have given them commissions upon graduation, usually because they could not foresee another war and were more interested in becoming oriented in civilian life than in securing Marine reserve commissions." Clearly then no sympathy can be given such college men who are now, or have been, on active duty.

2. The GCT standard and college equivalency test required of men without a college education. The Marine Corps must rely on certain measuring devices for prospective officers in conjunction with a comprehensive personal interview and a careful investigation of the candidate's previous record. No fairer means of selecting officers or prospective employees is used by other governmental activities, or large corporations, for that matter.

3. As to physical defects, every consideration is given the applicant. In the past several months I have submitted four requests for waivers of physical defects for PLC candidates. Each request was approved.

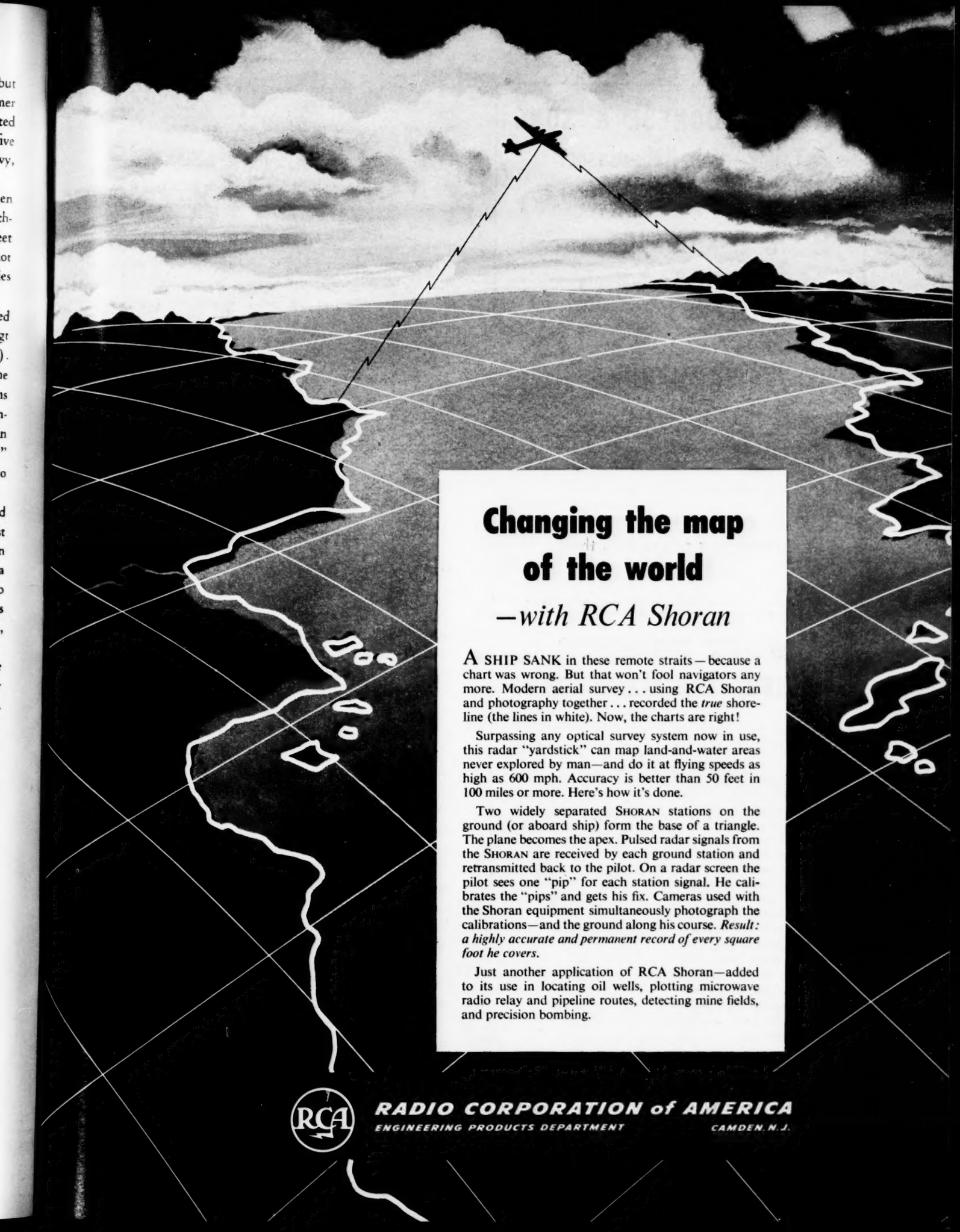
The Marine Corps has been very considerate in the matter of standards and has done a great deal to attract all eligible men into the commissioned ranks. A qualified man who does not have his commission must, in practically every case, search his conscience for the answer.

DONALD V. MCCLOSKEY,
Capt, USMC
Portland, Oregon

Rifle Mock-Up . . .

DEAR SIR:

The working model 3-F-5 of the M-1 rifle can be improved greatly by simply using a paint brush and various colors of paint. The model when it comes from the factory is coated with a silver paint. This makes it extremely difficult for the student to see the moving parts. The instructors at the recruit depots and any other place where students are introduced to the rifle for the first time would, I'm sure, find it very beneficial if they painted the following parts a contrasting



Changing the map of the world

—*with RCA Shoran*

A SHIP SANK in these remote straits—because a chart was wrong. But that won't fool navigators any more. Modern aerial survey . . . using RCA Shoran and photography together . . . recorded the *true* shoreline (the lines in white). Now, the charts are right!

Surpassing any optical survey system now in use, this radar "yardstick" can map land-and-water areas never explored by man—and do it at flying speeds as high as 600 mph. Accuracy is better than 50 feet in 100 miles or more. Here's how it's done.

Two widely separated SHORAN stations on the ground (or aboard ship) form the base of a triangle. The plane becomes the apex. Pulsed radar signals from the SHORAN are received by each ground station and retransmitted back to the pilot. On a radar screen the pilot sees one "pip" for each station signal. He calibrates the "pips" and gets his fix. Cameras used with the Shoran equipment simultaneously photograph the calibrations—and the ground along his course. *Result: a highly accurate and permanent record of every square foot he covers.*

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An Ideal Gift For the Serviceman

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color: Sear, rear hammer hooks, front hammer hooks, trigger lug, hammer, safety, operating rod catch assembly, and the notch on the operating rod, all the pins (same color), and the bent portion of the follower rod.

Other improvements that could be made at the factory would be a transparent window of plastic or plexiglas in the hump on the operating rod. This would enable the student to see how the bolt locks and unlocks. The operating lug, if painted, could be seen through this window very easily.

The clip is very fragile and too light to be of much use (the one we have is always bending out of shape and there isn't enough spring in the metal to hold the cartridges in place). The clip ejector spring should have more tension in it.

Another improvement would be on the rear sight. If it could be made adjustable so that the click system could be heard and seen, it would make it a lot easier to teach windage and elevation. I'd like to say this is the best model I've seen yet, and I think we are on the right track toward an excellent training aid.

JAMES T. GUIN,
MSgt, USMC
Parris Island, S. C.

Memo Pad Pays Off . . .

DEAR SIR:

I returned recently from maneuvers in Puerto Rico. The fulfillment of this operation meant a vast knowledge of experience in the preparation and execution of these maneuvers from a supply standpoint.

I am an aviation supply NCO. From the first day materials and equipment were issued in preparation for this operation, and during the entire maneuver period and return, I compiled notes from experience and made entries in my little memo book with precious info on supply. Such memoranda included what supplies to order well in advance of such operations, what equipment was in excess or short of our requirements, how certain materials stood up, what replenishments were necessary, etc.

As I knew I was due for discharge shortly after my return, and was certain I would not undertake similar field operations, I compiled this data to pass on to my successor. Had I been fortunate enough to receive from my predecessor such constructive information, my task would have been greatly eased.

Compact notations such as this could be maintained in diary form by any individual, department, or unit for future reference to greatly facilitate the job in the field.

Should similar conditions prevail on the next field problem, my replacement feels confident of handling supply with a minimum of confusion.

L. FRANK,
TSgt, USMC
Hillsdale, N. J.

For a Merry Christmas!

★ ★ ★

LEATHERHEAD IN KOREA

By SSgt Norval E. Packwood, Jr.

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By the creator of *Leatherhead in Boot Camp*

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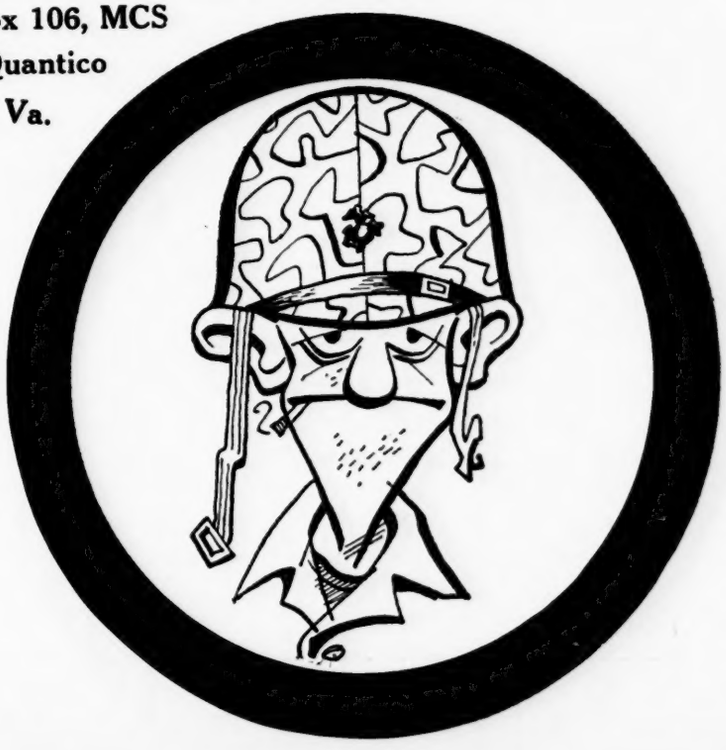


Notes on Our Authors

MAJ HUSTON

The word *imagination* has changed greatly since Shakespeare wrote: "In the night, imagining some fear, how easy is a bush supposed to be a bear." That concept we now rightly label *fancy*, because it deals with superficial resemblances. Imagination, according to Webster, connotes the exercise of creative power—and that's what **Maj James A. Huston, USA**, had in mind when he wrote *Imagination for Leadership*, page 18. Maj Huston, now on active duty with the Army Military History office in Washington, is a history professor at Purdue University in civilian life. He was a battalion S-3 with the 134th Infantry in WW II and has written many military articles.

2DLT BOYNTON

Imagination obviously induced newly-commissioned **2d-Lt William W. Boynton** to write *Keep 'Em Combat Ready*, page 50, in which he offers several sound ideas for training men at small posts and stations. Boynton was a master sergeant when he wrote the piece. His Marine career includes sea duty in the USS *Tuscaloosa*, barracks duty at Norfolk, and I&I work in Detroit. Recently back from Korea, he is now stationed at Parris Island, S. C.

2DLT KENNEDY

While this country was in the throes of the "War for Southern Independence," as some Johnny-rebs still call it, China was having a civil war, too. The hero was a daring young Englishman whom **2dLt William V. Kennedy**, Air National Guard, writes about in *Chinese Gordon*, page 26. Kennedy hails from Mechanicsburg, Pa., and is a graduate of Marquette University. He spent eighteen months in the Army, serving in the Far East.

A little unification would go a long way toward solving some of the Armed Forces' problems with military map reading, believes **LtCol Cecil W. Shuler**. His proposal is documented on page 34, *And Still "Read Right Up."* Col Shuler has been an instructor at the National War College, executive officer, 1st Bn, 8th Marines; G-2, 2d Mar Div, and assistant naval attaché in Turkey. Now he is assistant G-2 for TTU, Atlantic.

LTCOL SHULER

As long as we're emphasizing imagination this month, we ought to pay respects to the gentlemen for whom hardly anything is impossible. **LtCol L. E. Hudgins** does it admirably in his article *The "Can Do" Boys*, page 23, in which he describes how those indefatigable Sea Bees fit into the present amphibious picture. Col Hudgins knows whereof he speaks, having served four years with the 1st Mar Div in the Pacific in WW II and now as assistant operations and plans officer for Phib Group One, Pacific Fleet.

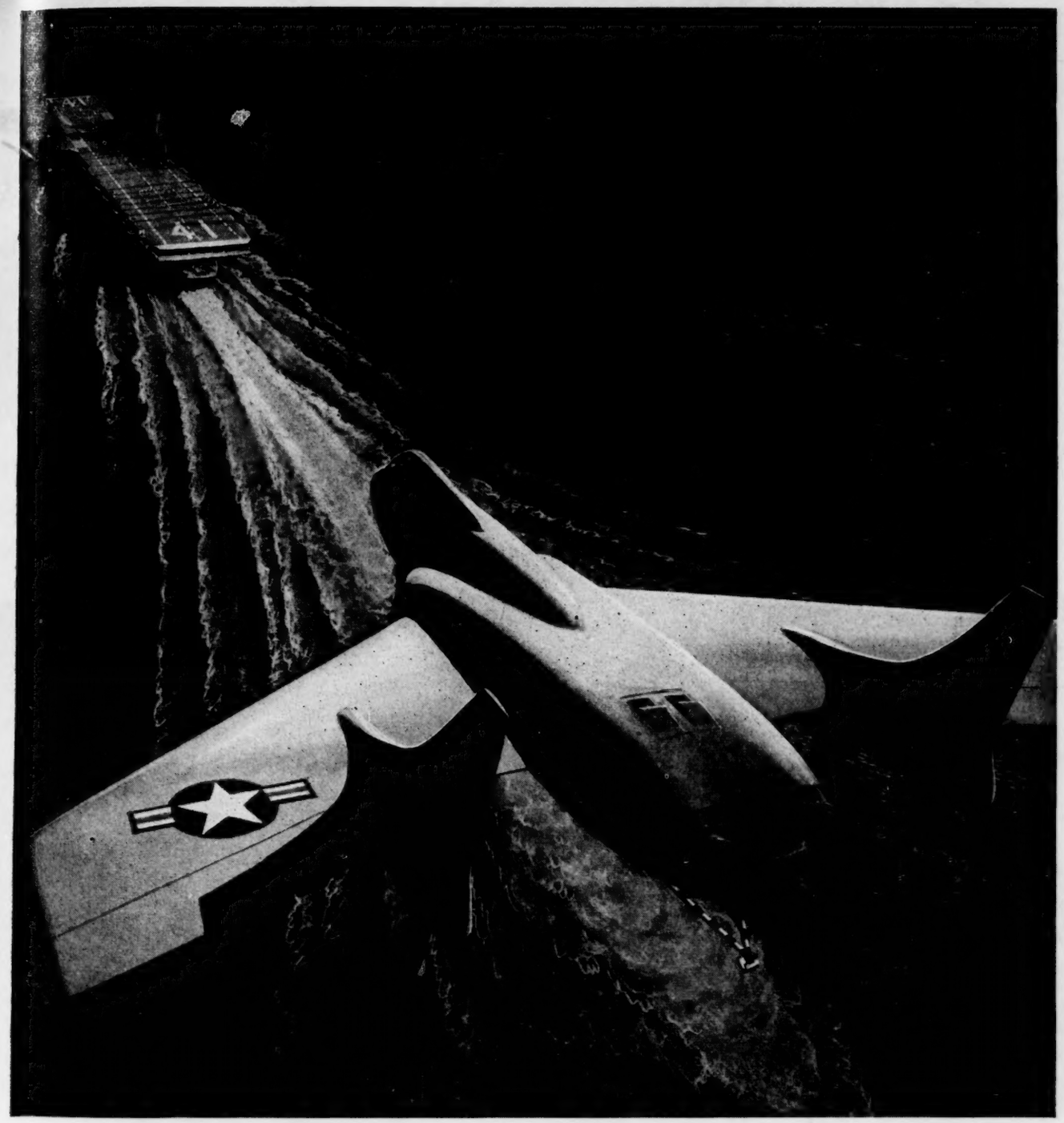
LTCOL HUDGINS

Capt Edward E. Kaufer, author of *Four-Deuce is a Winner*, page 38, had his work cut out for him when he joined the new 4.2 Mortar Co of the 2d Weapons Bn at Camp Lejeune in October 1949. "With no experienced men, no SOP, and only two men with artillery FDC experience, there was considerable hesitation the day we fired our first round," Capt Kaufer writes us. "In fact, after eight hours we managed to fire a grand total of eight rounds—quite a contrast to days in combat (later in Korea—Ed.) when we put out over a thousand." At present, Capt Kaufer is stationed at Marine Corps Schools, Quantico.

CAPT KAUFER

This month marks the appearance of several new names among our growing family of authors. The bylines of Lt Boynton and Capt Kaufer, for example, represent their first magazine articles. Rounding out this trio is **LtCol Harry C. Olson**, who authored the story on page 54 entitled *Forty-Three Years of Motor Transport*. Col Olson served twenty months as Motor Transport Officer, FMF Pac. Currently he is in MT supply at Camp Lejeune. USMC

LTCOL OLSON



A Mightier Cutlass Comes Aboard

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The Navy has completed extensive carrier qualification tests with this new airplane.

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For thirty-five years, Chance Vought Aircraft has been producing aircraft to meet the exacting requirements of the United States Navy. As Cutlasses continue in production, Chance Vought will continue to modify and improve these aircraft to meet the Navy's changing operational needs.

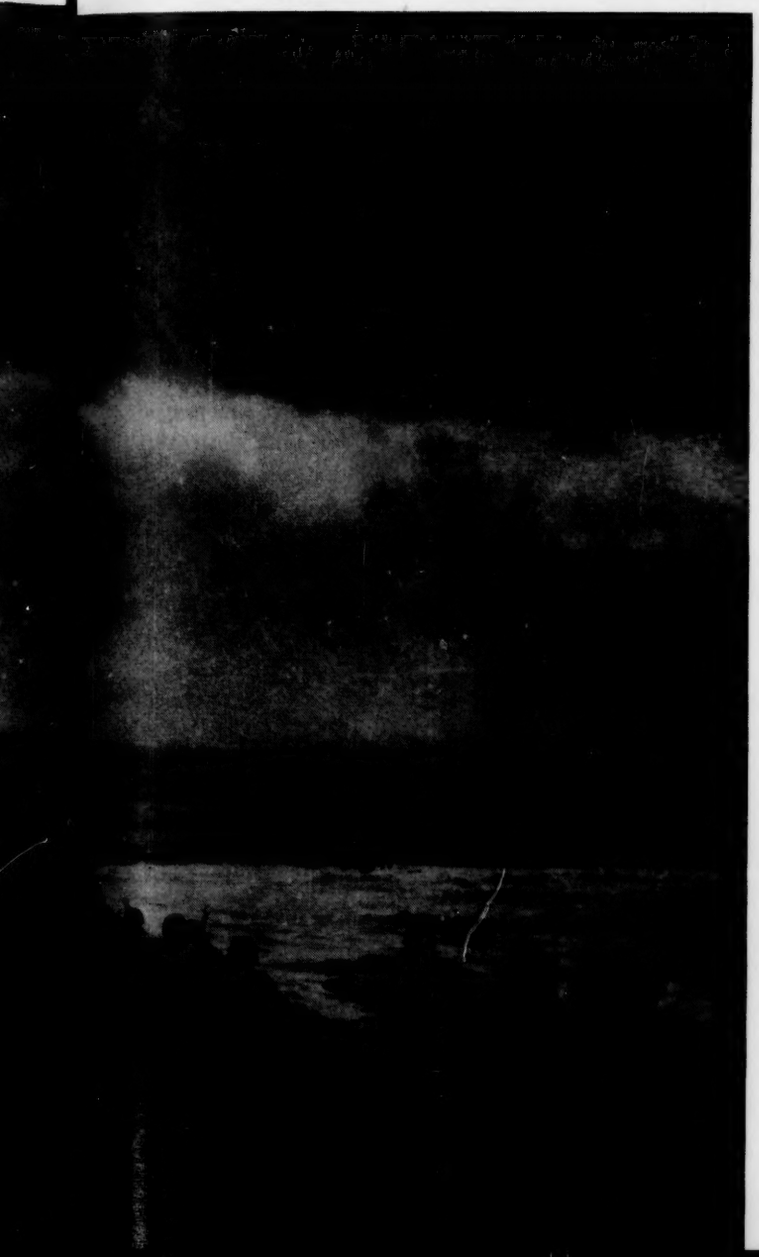
Chance Vought Aircraft . DALLAS, TEXAS

ONE OF THE FOUR DIVISIONS OF UNITED AIRCRAFT CORPORATION

IMAGINATION for LEADERSHIP

By Maj James A. Huston, USA

ILLUSTRATED BY PFC TONY KOKINOS



SHORTLY AFTER THE CONCLUSION OF THE VICKSBURG campaign in 1863, someone approached Gen William T. Sherman and asked, "General, don't you think you could have conducted this campaign just as well as Grant did?"

"Yes, I do," Sherman answered, "but you see I wouldn't have thought of it in the first place."

Gen Sherman was alluding to one of the most important qualities of leadership—imagination. Imagination is the ability to see big possibilities and to conceive the means to bring them about. Much of the story of military success and failure is to be found in the outcome of struggles between imaginative thinkers and unimaginative skeptics who took pride in being "practical men."

To the British Army, deadlocked in machine-gun and trench warfare on the Somme in 1915, a fertile imagination on the part of Col Ernest Swinton and a few associates envisioned victory through the tank. Unimaginative "practical men" on the staff of the British Expeditionary Force and in the War Office almost killed the idea. In fact, an English plumber submitted a design for a tank to the War Office in 1911, only to have it pigeon-holed with the notation, "The man's mad." Another design submitted in 1912, actually superior to the 1916 tank, likewise was pigeon-holed and forgotten. In 1915 an appeal directly to Field Marshal Haig finally overcame the obstruction of his staff to the forwarding of Swinton's

It ought to be as culpable for a leader to be surprised by a new idea as by the enemy

"Billy" Mitchell—he looked at the globe

specifications, and thanks largely to Prime Minister Asquith and Winston Churchill, then First Lord of the Admiralty, development of the tank proceeded. Subsequently, however, the imagination of Haig and his staff proved unequal to seeing the possibility of achieving a decisive breakthrough by massing enough of the new machines and building up sufficient reserves. Instead, they spent them prematurely for a cheap local attack on the Somme, and then reported that the tanks would not do the job. Their reports led the War Office to cancel an order for a thousand tanks which the Ministry of Munitions had just made. An imaginative major appealed to Prime Minister Lloyd George and the tanks were built. At Cambrai, in November 1917, the tanks proved themselves and played a major part in the offensives of the following year.

The planning of an operation of the magnitude of the invasion of Normandy required a broad imagination of a high order. It took imagination to see the possibilities which could be achieved and to conceive the means of obtaining the kind of coordination of ground forces, landing craft, naval support, airborne troops, air support, and supply facilities necessary to realize those possibilities.

Repeatedly during World War II, Gen George C. Marshall demonstrated an unmatched imagination. The Chief of Staff was a key figure in the development of the global strategy for a war which would have been beyond the imagination of a lesser man. His was a central position in the building of the structure of Allied control between the United States and Britain, which became "the most complete unification of military effort ever achieved by two Allied nations." His imagination anticipated the Normandy invasions, and had Gen Marshall been the Supreme Commander — and he almost was — he probably would have put greater emphasis on the airborne role in the operation. Already he was looking forward to the possibility of making a deep, strategic penetration and establishing an airhead which could be maintained by air for several days. The fairly recent "Swarmer" maneuver was just getting around to that concept.

IMAGINATION IS THE faculty for improvising methods, techniques, or tools to meet new conditions, situations, and problems. It is the kind of ingenuity which provided the answer when German fire was neutralizing efforts of engineers to use bulldozers in repairing Italian roads. According to Gen Eisenhower, "Some imaginative and sensible man on the home front solved the problem by merely converting a number of Sherman tanks into bulldozers." Imagination led Sgt Curtis Culin to come up with his attachment of steel blades to the front of a tank so that the tank could cut through the impassable hedgerows in Normandy. Imagination led Marine engineers on Guadalcanal, faced with the problem of repeated loss of temporary bridges in the tropical flash floods, to build their own pile driver with salvaged trusses, a gasoline-driven winch, steel cable, and a 500-pound hammer—a contrivance with which they drove piles deep into the river bottom and built bridges that withstood the floods.

It was an expression of imagination which encouraged leaders to find secondary missions for tank destroyers and antiaircraft weapons — to find that those weapons could be useful in long range harassment and interdiction against personnel and buildings and fortifications as well as against tanks or aircraft. German imagination, it might be said, was well ahead with the 88mm triple-purpose gun. The .50-caliber machine gun originally was introduced in the 1930s as an *antitank* weapon, and queries about turning it against low-flying aircraft were met with remonstrations that this weapon *never* should be directed away from its primary mission. The mount, it was pointed out, was such as to make it impractical for air targets. But when the war came, one hardly ever thought of using a .50-caliber machine gun against tanks. It turned out to be a good antiaircraft weapon.

Imagination is the maintenance of an open mind—what Socrates called a "philosophical mind." The philosophical mind is not dogmatic about one's assumptions and it implies a willingness to recognize merit in the ideas of others. Of course Jefferson found that the best way to put across a new idea with another person is to suggest

it so adroitly that he will think the idea his own and then naturally be its supporter. The "philosophical mind" should make that unnecessary, but one should recognize the value of it in dealing with people who fail to share that open-mindedness.

Though often associated with a cool military sternness not suggesting a very active imagination, Gen Pershing often demonstrated broad powers of imagination. Not only was this true in his strategic and tactical concepts, but in his receptiveness to novel ideas from others. According to Gen Brereton, "Billy" Mitchell went to Pershing late in 1918 with a proposal for an attack against Metz by paratroopers. Infantrymen of the 1st Division would don parachutes and fly by heavy bomber to the rear of the enemy's defenses. Others would have ridiculed the idea, but Pershing agreed to give it a try. The early coming of the Armistice made the proposed airborne attack unnecessary. But perhaps some seeds were sown for later use.

THE ENTHUSIASM OF one man—an infantry colonel on duty with the Office of Strategic Services — was instrumental, over the protests of officers who shared neither his enthusiasm nor his imagination, in carrying out a series of experiments in 1942 to test possible tactical uses of the light liaison plane. Actually "air cavalry" units did not win general acceptance, but "Grasshopper" planes did prove their worth in supply and evacuation missions in the Far East. Sometimes they even were pressed into combat service armed with grenades or rocket launchers. But one man's enthusiasm for an idea can have little result unless those in authority are receptive—unless they also have "philosophical minds." It was a most fortunate circumstance for the American effort in World War II that we had imaginative leadership during that time. More recently, the Marines' use of the helicopter in Korea has been a singular demonstration of a healthy imagination. And it took imagination for the Marines to see the continuing value of organic, close-support aviation when more spectacular uses of air power were making such popular appeal.

Normandy—a smart sergeant added blades

Gen Marshall envisioned an airhead

Imagination is the ability to free oneself of the fetters of common, uncritical thought and popular assumptions. The imaginative mind takes little for granted, and it welcomes any change for the better.

It is this lack of imagination that is implied in the statement that we begin one war with the weapons of the last. In the course of military history it frequently seems to be that defeat grows out of success. That is, a new weapon or a new tactical organization becomes the means for a decisive victory, and once its success is proved, it then is retained until forced into defeat by another new development. Thus the phalanx, invincible under Alexander the Great, was retained until it was forced to give way to the Roman legion. The English long bow, successful at Crecy, became the standard weapon of English armies which, resisting the changes demanded by the introduction of gunpowder, fell to defeat before the primitive French cannon. And the French, convinced of the superiority of the noted "75" artillery piece during World War I, found it wholly inadequate in 1940.

Habitual association with the Mercator projection of the world map has led to many geographical misconceptions. Here again it was Billy Mitchell who was able to free himself from those fetters to see that the key to

control of the North Pacific is not Hawaii, as the Mercator projection suggests, but Alaska, as a globe shows. At the same time many Americans adhere to a certain isolationism—that we should confine our defensive efforts to "this hemisphere." In their unquestioning assumptions they do not realize that the nations of the North Atlantic Pact really form a more compact geographical unit than do the republics of the Pan-American system. Nor do they realize that "this hemisphere" — if you draw it around a center in the North Atlantic instead of out in the Pacific—may include all of Europe, all of Africa, western and northern Asia, as well as all of North and South America. A leader must have enough imagination to see things from different angles.

In our emphasis on the importance and desirability of imagination, a word of caution may be in order. First of all, there is an important place in the order of things for the man who "has to be shown." Sometimes it requires genius to distinguish between fantasy and the practical. But skepticism should be directed as much against old ideas as against new.

NOW IF IMAGINATION IS accepted as one of the essential qualities of leadership, what can be done to develop it? It is of the greatest importance to provide the broadest possible experience for all leaders of the Armed Forces. This suggests rotation of military assignments from staff to troop duty, to schools, to civilian components, from domestic to overseas assignments. Acceptance of officers from all of the Armed Forces into the various command and staff schools and war colleges is a praiseworthy effort. But much more needs to be done. It is as important to develop imagination among junior officers—tomorrow's seniors—as it is among present senior officers. A broad exchange program of short courses in the service schools might go far in that direction. Beyond that it ought to be possible to work out a regular series of orientation visits. Make up packets of junior officers from all branches of the Army, Navy, and Air Force for summer orientation tours—a week at Aberdeen Proving Grounds —a week at Wright-Patterson—a cruise in the Caribbean, including time aboard an aircraft carrier, destroyer, cruiser, or submarine—a week at the Airborne Center—a flight to Germany—a flight to Japan. Such experience would be likely to pay rich dividends in exercising the imagination.

Experience, of course, can be secondhand. Schools provide some of this in their map problems and practical exercises. Here the guard must be against stilted solutions. The tradition of offering "a solution," not "the solution" is a wise approach but, even within that definition, instructors sometimes are prone to frown upon unorthodox solutions just because they are different. It is a good idea to face a vicarious situation and consider, "What would I do?"

Another approach to second-hand experience, and one which deserves much greater emphasis in officer candidate and troop schools, is the study of military history. That ingenious observer of military and political affairs, Machiavelli, offered this advice: "As to the mental training of which we have spoken, a prince should read histories, and in these should note the actions of great men, observe how they conducted themselves in their wars, and examine the causes of their victories and defeats, so as to avoid the latter and imitate them in the former."

Napoleon counseled the military leader to study the great captains and their campaigns. Military history should be studied broadly and seriously. It should be studied, not with any thought of mere duplication (no one would recommend that a second lieutenant could best lead his platoon by deciding, "Now what would Napoleon do in this situation?"), but military history should be studied for the experience and the development of imaginaton that it can give. Someday a fertile imagination will make use of that experience without even recognizing it. Col Swinton got his idea for a tank from a study of the history of the Russo-Japanese War.

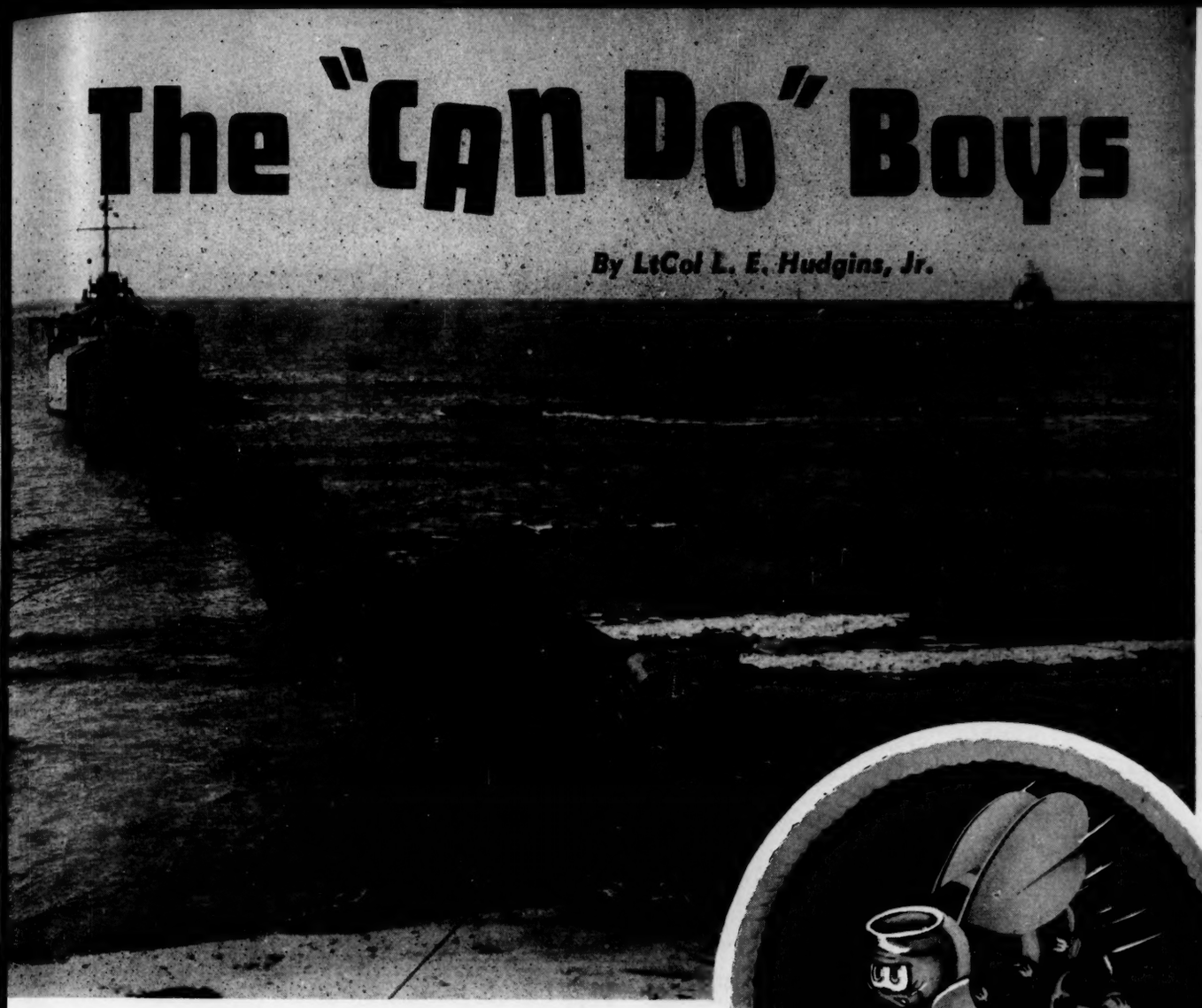
Finally, there ought to be a greater opportunity for officers—young and old—to "play with ideas." It is well to recall the words of the psychologists, "The individual who understands people and is familiar with the world about him, . . . and, above all, who has the habit of playing with ideas, has a background and an attitude that are well calculated to increase the fertility of his imagination . . . ." Often the "conference" method appears on training schedules, but too often the conference is indistinguishable from the lecture. There is a place for a broad program of military discussion groups. Such groups might function on the "Great Books" idea, and center their discussions around great military books such as *The Living Thoughts of Clausewitz*, for example. Or discussions might turn upon some thought-provoking article or series of articles in the *Gazette* or other journals. Younger officers should have the benefit of the rich experience of their seniors, and the seniors might hear some new ideas from the juniors.

Courage is important for leadership, consideration is important, many qualities are important. But none is more important than imagination. It was a wise man who once said, "There can be no deed lest there first be the dream." Imagination to visualize the steps necessary to achieve the dreams and the big designs in military affairs, like politics, encompasses "the art of the possible." But imagination can give an almost unlimited extension to the horizon of the possible.

It ought to be as unpardonable for a commander to find something beyond his imagination as for his command to suffer a surprise attack. It ought to be as culpable for a leader to be surprised by a new idea as by the enemy. USMC

The "Can Do" Boys

By LtCol L. E. Hudgins, Jr.



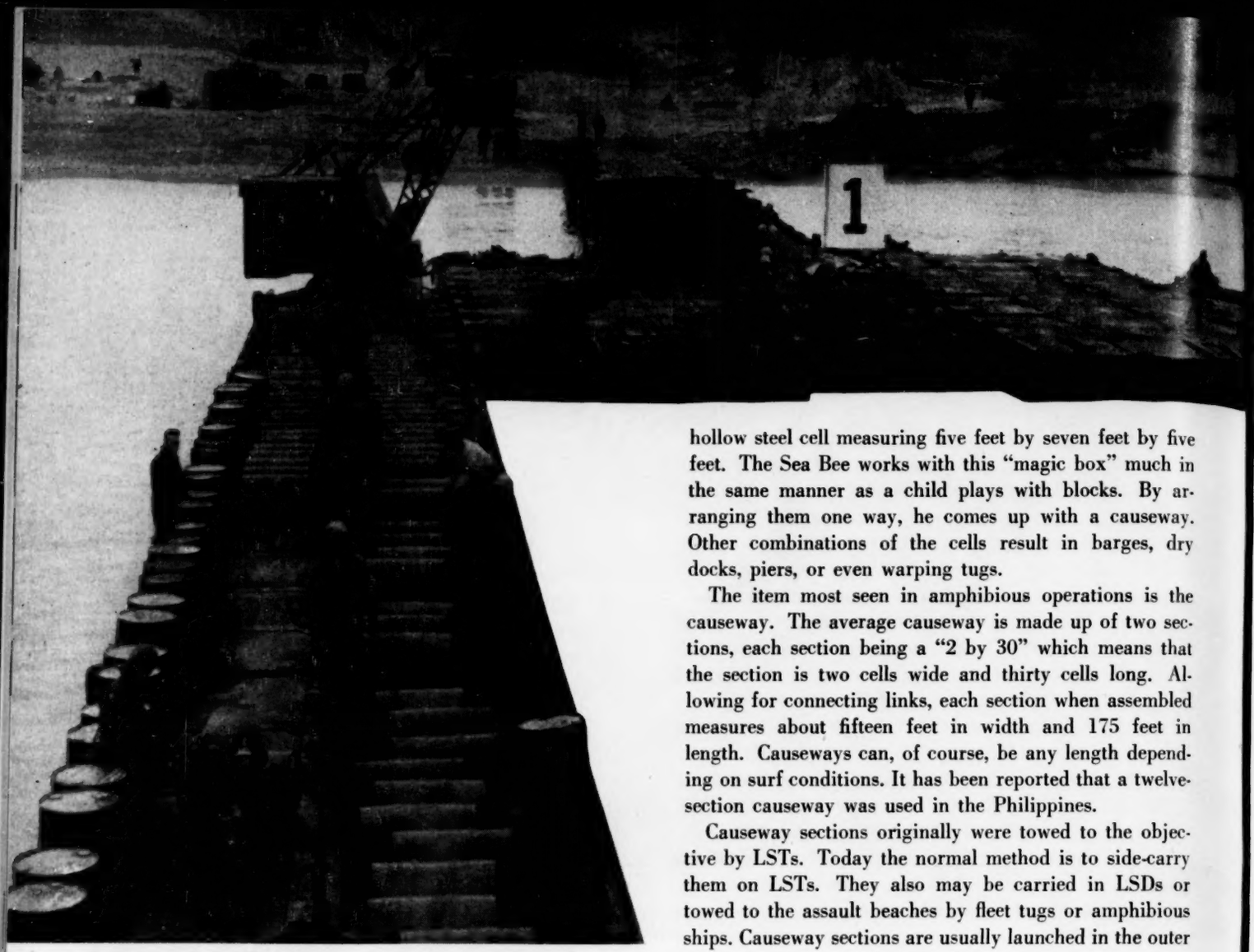
WHERE DID THE SEA BEES GO? WHAT HAPPENED TO the 250,000 steelworkers, carpenters, and other construction specialists who earned the admiration of Marines during World War II by their ability to "build" and duck bullets at the same time?

Well, the "can do" boys are coming back, as Marines who were in on the Inchon landing can testify. But the Sea Bee with the Marine today is the Amphibious Sea Bee, the youngest member of the "can do" family. And instead of the road graders and other heavy equipment of World War II, this new Sea Bee works with a "magic box," and belongs to an outfit called the Amphibious Construction Battalion.

The Sea Bees have undergone many organizational changes since Okinawa. The familiar Naval Construction Battalion that formerly operated with the Marine division has been reduced in size, and no longer is in the task organization. Most Sea Bees now are found in another type organization known as a Mobile Construction Battalion (MCB). These MCBs are similar though smaller than the Naval Construction Battalions, and during 1952 there were nine of these battalions spread over the globe performing construction and maintenance work. Your chances of coming upon these MCBs are slim—for this Sea Bee unit is not in the task organization.

A third member of the naval construction forces is the lesser known Construction Battalion Detachment (CBD). These organizations are of variable size, engaged primarily in maintenance but also able to perform minor construction and other services at major bases. These detachments are usually tailor-made to carry out a specific task such as airfield maintenance or support of a Public Works department.

Now to get back to the Sea Bee that Marines will be seeing much more of—the amphibious newcomer. The



amphibious Sea Bee had his beginning in Europe in 1943, where he put in the first pontoon causeways ever used in an amphibious operation. This was during the Sicily landings where the gradient of the beach was such that causeways were necessary to bridge the gap from the LSTs to the shore line. He reached the Pacific with his causeways in time for the attack on Kwajalein and made such a hit that the entire 302d Naval Construction Battalion spent the rest of the Pacific war installing and maintaining pontoon causeways. This battalion might properly be called the "father" of the present Amphibious Construction Battalion.

The Amphibious Construction Battalion is assigned to a Naval Beach Group, where, along with the Boat Unit, Underwater Demolition Teams, and the Beachmaster Unit, it provides the Naval beach components necessary to support an amphibious assault. The battalion is organized triangularly, providing a pontoon company for each of three regimental beaches. The other companies in the battalion furnish the necessary specialized equipment. The battalion also has the responsibility of feeding and billeting the Naval Beach Party.

The main piece of equipment used by the battalion is a hollow steel cell measuring five feet by seven feet by five feet. The Sea Bee works with this "magic box" much in the same manner as a child plays with blocks. By arranging them one way, he comes up with a causeway. Other combinations of the cells result in barges, dry docks, piers, or even warping tugs.

The item most seen in amphibious operations is the causeway. The average causeway is made up of two sections, each section being a "2 by 30" which means that the section is two cells wide and thirty cells long. Allowing for connecting links, each section when assembled measures about fifteen feet in width and 175 feet in length. Causeways can, of course, be any length depending on surf conditions. It has been reported that a twelve-section causeway was used in the Philippines.

Causeway sections originally were towed to the objective by LSTs. Today the normal method is to side-carry them on LSTs. They also may be carried in LSDs or towed to the assault beaches by fleet tugs or amphibious ships. Causeway sections are usually launched in the outer transport area and it is here that the warping tugs come into play. These unique tugs are nothing more than an arrangement of cells powered by two oversize outboard motors and are ideal for the job of herding together the sections that go to make up the causeway pier. After assembly, the causeway pier is ready to be pushed by the warping tug to the beach upon signal that the beach is ready to receive it. Another way of getting sections to the beach is by the momentum method. The sections are towed alongside an LST and just as the LST grounds, lines are cast off and the sections proceed under their own momentum to ground on the beach.

The Sea Bees almost missed the Inchon operation. Before the outbreak of the Korean war there were less than 3,300 Group-8 ratings on active duty in the Navy. This group makes up the steel workers, builders, and other construction personnel that go to make up an ACB. It was only through careful planning and much sweating that sufficient men and materials were dispatched from the West Coast and assembled at Yokosuka in time for the operation. Ask any of the Inchon veterans (that weren't in the early waves) and they will tell you that causeways were in on D-day. To accomplish this the Sea Bees used four LSTs. Three of the LSTs side-carried barges and causeway sections and, in addition, carried cranes on their top decks. The other LST carried dozers and miscellaneous equipment. Two ocean-going tugs towed additional sections and warping tugs. About 1500 on D-day the tows were cut loose and the causeway sections were pushed into position on the west side of Wolmi-do to permit the rapid unloading of critical supplies from LCUs, LCMs, and LCVPs. The four-knot current proved too much for LST unloading. On D plus one another causeway was installed inside Inchon harbor. This was long enough to permit continuous unloading no matter what the stage of the thirty-foot tide. Finally on D plus four a Y-shaped pier consisting of five "2 by 30" sections and one "5 by 30" dock section was installed on Opal beach and no further causeways were necessary. This "beauty" worked so well that all of the truck cargo of one LST was unloaded in forty-seven minutes.

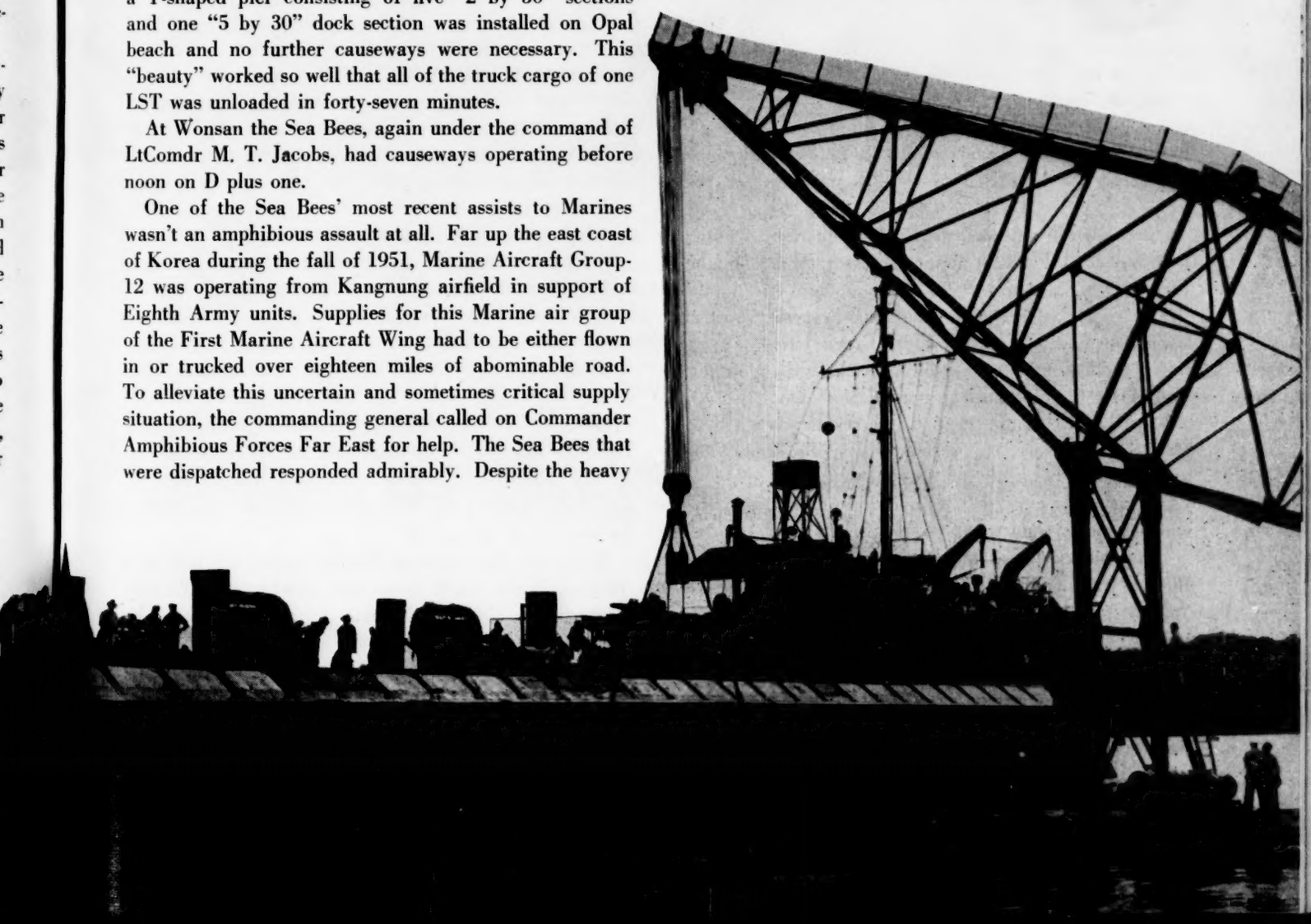
At Wonsan the Sea Bees, again under the command of LtComdr M. T. Jacobs, had causeways operating before noon on D plus one.

One of the Sea Bees' most recent assists to Marines wasn't an amphibious assault at all. Far up the east coast of Korea during the fall of 1951, Marine Aircraft Group-12 was operating from Kangnung airfield in support of Eighth Army units. Supplies for this Marine air group of the First Marine Aircraft Wing had to be either flown in or trucked over eighteen miles of abominable road. To alleviate this uncertain and sometimes critical supply situation, the commanding general called on Commander Amphibious Forces Far East for help. The Sea Bees that were dispatched responded admirably. Despite the heavy surf encountered at that time of year along the east coast of Korea, a detachment of Sea Bees from ACB-1 rammed home a causeway pier within shouting distance of the airstrip and made it stick. LSTs were unloading critical fuel and other supplies within hours after the pier was completed. Not satisfied with this, these forty men of Charlie Detachment stayed around long enough to construct a new supply area, build a refueling dump, repair the roads around the airstrip, and then proceeded to put all the motor transport in good shape. And some people wonder why Marines and Sea Bees form such a wonderful mutual admiration society!

LtComdr R. E. Dilley, a veteran of the Inchon and Wonsan landings, summed up the role of the amphibious Sea Bee rather well.

"You tell those Marines," he said, "that an amphibious Sea Bee outfit doesn't have those mountains of equipment they were used to seeing in the last war. No earth moving equipment, no airfield construction — nothing like that. All we're equipped to do is install a few causeways, make a few beach slots, and do a little road improvement."

We'll tell them. But it won't do any good. The Sea Bees are the "can do" boys; remember? USMC



CHINA AT THE TIME OF THE AMERICAN CIVIL WAR staggered under the blows of foreign wars and internal rebellion. From across the seas and south from the Amur River and Siberia, England, France, and Russia strove mightily for commercial privileges and territorial gain. Within China, the Flowery Land, pillaged cities and a ruined people marked the path of a grotesque civil war.

Mixed into this cauldron were three human beings, any one of whom would have caused a sensation in any nation, at any point in its history. Coming as they did at the same time, they produced a drama unique even for China.

Tzu Hsi, a concubine of the Emperor Hsien Feng, and

Chinese Gordon

known in later years as "The Dowager Empress," seized power on the Emperor's death in 1861. She declared illegal a regency appointed by the Emperor because its appointment lacked the official seal — Tzu Hsi had stolen it. Then she murdered the three members of the regency.

Later Tzu Hsi poisoned the Emperor's widow, gaining complete control of the infant successor to the Dragon Throne.

Tzu Hsi inherited from her lord, the Emperor, the T'ai P'ing Rebellion, "The Revolt of the Great Peace," concentrated at that time in the lower Yangtze River valley, threatening the great foreign port of Shanghai.

Started near Canton in 1850, the revolt was led by a Kwangtung peasant, Hung Hsiu-Chuan, the Tien Wang or "Heavenly King," self-appointed younger brother of Christ and bearer of a new Christian revelation, complete with his eighty-eight wives.

Hung had acquired the Christian veneer from some Biblical tracts distributed by American missionaries. His "divine commission" fitted in with the ambitions of secret political societies active in southeast China.

By 1861 the revolt had steam-rollered up the China coast and had established its capital at Nanking. The capture of Peiping itself was blocked only by a desperate defense on the part of the Imperial Army.

Into this turmoil stepped a young Englishman, Charles George Gordon, Companion of the Bath, Captain of Royal Engineers. At the age of twenty-nine he combined the mysticism of a Trappist monk with a staunch Protestant, somewhat Calvinistic code, and no small amount of military talent. He had won the Legion of Honor in the Crimea at the age of twenty-two. This was the man who, for his leadership of the Ch'ang Sheng Chi-un, "The Ever Victorious Army," was to be known forevermore as "Chinese" Gordon.

Born on January 28, 1833 in the garrison town of Woolwich, England, Gordon was descended on his father's side from generations of Scots soldiers. On his mother's side, he was the grandson of the merchant whose ships figured in the Boston Tea Party.

At nineteen, Gordon was graduated from the military academy at Woolwich as a second lieutenant of engineers. After a period of service building fortifications in England, he was sent to the Crimea where he participated in the seige and capture of Sevastopol.

It was during his Crimean War service that the deep religious fervor which was to stamp the young engineer's entire career first became noticeable. Out of his letters home comes the thread of a philosophy which saw the infinite plan of the Almighty in every action of man and every phenomenon of the universe. Gordon, as he saw himself in the light of this reasoning, was an instrument of God's will just as was the lowliest animal or plant in creation. On the basis of this, Gordon learned to conquer fear. As his philosophy developed further, especially as he saw sorrow and misery everywhere around him, he acquired a longing for death and the eternal peace which he envisioned beyond it.

In his physical makeup, Gordon looked the part of a Victorian hero. Curly brown hair, sideburns, and a trim mustache set off his aristocratic features, dominated by thoughtful, Celtic eyes. Of medium height, he carried himself in a casual though still soldierly manner. Money meant nothing to Gordon. A bachelor throughout his life, he gave almost his entire pay to the poor when on service in England, or used it in projects for the care and education of orphan boys. In contrast to his plunder-

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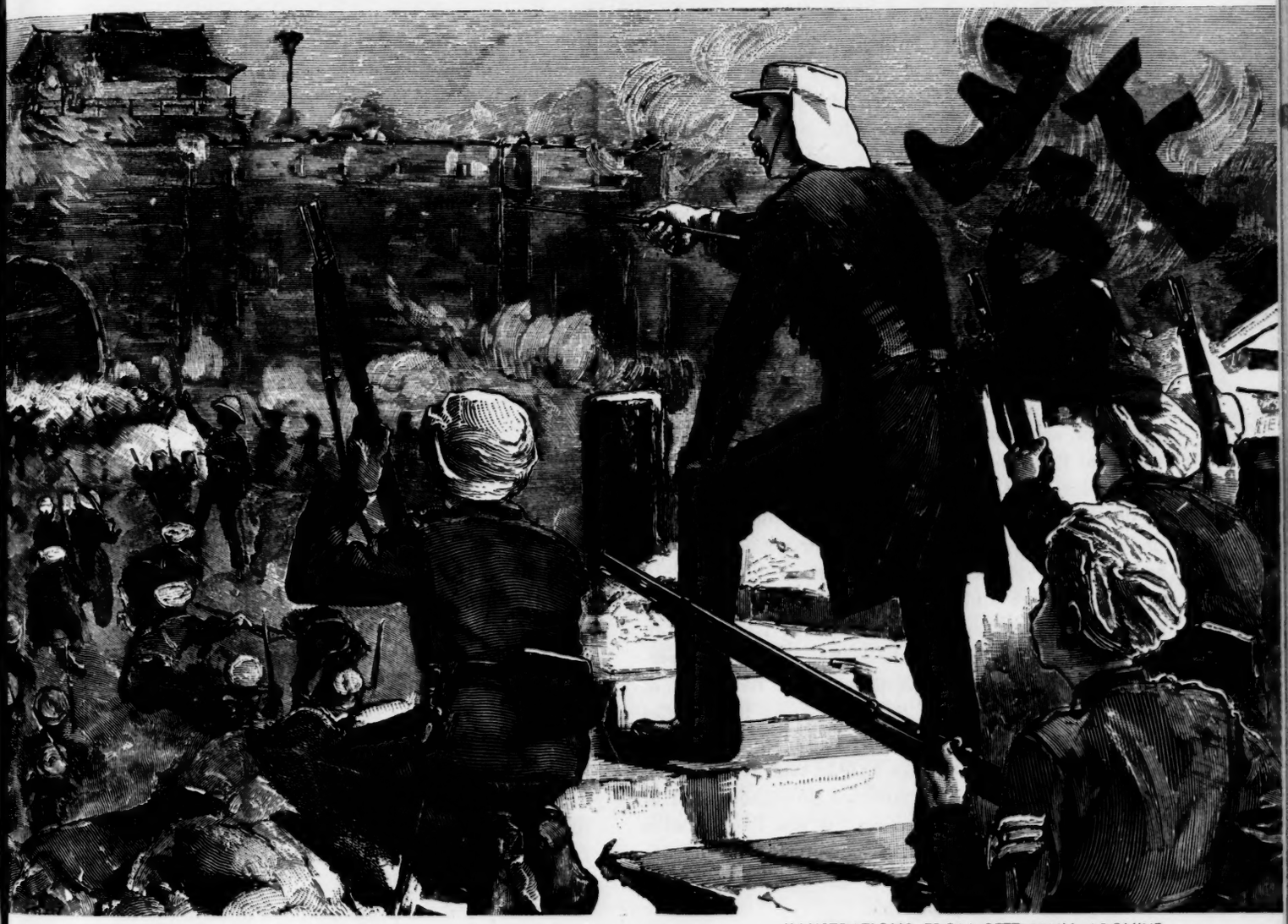
By 2dLt William V. Kennedy, ANG



ILLUSTRATIONS FROM BETTMANN ARCHIVE

In May 1863, the same month that saw the battle of Chancellorsville, a young Englishman led his "Ever Victorious Army" in an amphibious assault on the Yangtze River.

happy subordinates in China, Gordon spent his pay and some of his private funds in training and equipping The Ever Victorious Army.

In March of 1863, under the orders of his British commanding general, Gordon took command of the Ever Victorious Army (EVA for convenience) in the service of the Imperial Government of China. He recently had completed a surveying project in the country around Shanghai, an experience which was later to prove invaluable. Armed with the philosophy of Job and St. Thomas a Kempis, he entered the service of a concubine and murderess with the mission of destroying a semi-religious lunatic.

It was the mission which reconciled Gordon to his task. All around him in China he saw the almost incredible ruin which the Tai P'ing Rebellion had brought on the country and its people.

Like a blight, the rebellion destroyed everything it touched. It its wake it left barren fields, gutted cities and villages, and a starved and epidemic-stricken population.

Taiping troops entering a city either raped and murdered or prostituted the women, conscripted the young men, slaughtered the aged and the children, and set fire to everything that would burn. In the fourteen years of the revolt, an estimated twenty million persons perished.

Behind them the Taipings left no administration, no reorganization of the conquered territory, only a desert of destruction. In order to exist, the Taiping "Wangs," or princes, were in constant search for untouched areas to sustain the rabble which followed them.

When Gordon took over the EVA, he found it discouraged by the repulses it had suffered from the Taipings, and demoralized by the looting it had been permitted under earlier commanders. What there was of the force was gathered at Sunkiang, some thirty miles west of Shanghai.

Gordon's foes, the Taipings, were in control of the rich lower Yangtze Valley with garrisons throughout most of Kiangsu and Chekiang provinces. It was this situation which had prompted Gordon's assignment. As long as the rebellion throttled the lower Yangtze, normal trade with the interior was impossible.

Due to the undisciplined and clumsy nature of the Imperial and Taiping armies, both depended mainly on the capture and retention of the major cities. Masses of Imperial troops were tied down in sieges around the perimeter of the Taiping domain. In the face of this situation, Gordon, now a brevet lieutenant colonel, resolved on a complete reorganization of the EVA and a complete change in its tactics.

Gordon took the loosely organized force and converted it into a brigade that varied during its life from five to six infantry regiments each commanded by a major, at first, and later by a colonel or lieutenant colonel. The regiments averaged 500 men organized into six companies. He outfitted his force in a uniform of green breeches, a green, Zouave-type jacket, and leather boots. His personal bodyguard, a force of 300 men, Gordon clothed in blue with scarlet facings. There were approximately fifteen European and American officers assigned to each regiment. Among the Europeans were English, French, Irish, Greeks, Prussians, and Spaniards. All noncommissioned officers and privates were Chinese and the noncommissioned were promoted from the ranks. Gordon found that any further promotion of the Chinese was unsatisfactory due to a laziness most of them seemed to acquire with the commission.

INFANTRY WEAPONS CONSISTED mainly of smoothbore English muskets. One regiment was armed with weapons described as "Prussian rifles of the old pattern." Three hundred Enfields were distributed throughout the force.

An artillery regiment, consisting of four batteries of siege guns and two batteries of field artillery, was organized in support of the infantry. All the heavy weapons were on loan from Britain's China forces. The force did not include cavalry because the terrain in Kiangsu and Chekiang Provinces consisted of mud flats and rice paddies intersected by numerous canals, rivers, and creeks.

Gordon received his orders, nominally at least, from the Imperial Court acting through Li Hung-Chang, Governor of Kiangsu Province. Li took over payment of the troops, which reached eighty-five pounds per month for the officers and a high of six pounds per week for the enlisted men. Gordon himself received a total of 160 pounds per month. The money was paid in Mexican dollars. Rations were supplied free in the field but were sold to the men when in garrison at Sungkiang and later at Quinsan.

Assigned to Gordon as joint commander was a mandarin named Li-Adong. Li-Adong gave Gordon no interference in discipline or operations. He did, however, become a valuable S-2 officer due to his knowledge of the country and the politicians, and through his use of a good spy system.

Drill was based on the English system, with the English commands. Discipline was maintained by flogging and by dismissal from the force. No death punishment was provided for, although Gordon resorted to it on at least one occasion. Dismissal from the force proved to be an effective punishment due to the relatively high living standards, which also proved an effective means of obtaining replacements. As a result, much of the force in its final months consisted of former Taipings.

"He shot one of the noncoms and threatened to shoot every fifth man"

Important as the new administrative measures were, they were dwarfed by comparison with the revolution in tactics which Gordon introduced. From his surveying work in the vicinity of Shanghai, Gordon saw that the nature of the terrain demanded special adaptations of both troops and equipment. The theater of operations lay almost entirely on the southern bank of the Yangtze with the city of Suchow as its center. Most of the area lay only a few feet above sea level, and in some places was below sea level. The maze of waterways and the large Taiho Lake west of Suchow complicated the situation.

"Amphibious operations" describes best the solution Gordon worked out. Mobility had been ignored or forgotten in the desultory, positional war which the Imperials and the Taipings were conducting. Gordon foresaw that the first force to regain mobility of operations would obtain a decisive advantage. To provide some of the needed mobility, Gordon attached planks to the scaling ladders carried by coolies in his train. Instead of depending on the narrow walks around the rice paddies and the mud flats, the infantrymen would form a walk by laying the planks over the soft ground, gaining minutes and hours over their path and road-bound foes. Similar arrangements were made for the artillery.

To utilize the streams and canals to full advantage, Gordon acquired several steamers, the most important of which was the *Hyson*, an iron-paddle craft ninety feet long and twenty-four feet wide. She drew three to four feet of water. Mounted on the bow of the *Hyson* was a 32-pounder protected by a wooden mantlet. A 12-pounder on the stern was similarly protected. A shield of loopholed elm planking ran around the rest of the vessel to protect the crew and riflemen.

An ingenious designer of the *Hyson* had equipped her with a pair of wheels powered by her main engine. The boat therefore was able to move over muddy creek beds when the channel was too shallow to float her. American river boatmen, trained in the twistings and shoals of the Mississippi and the Missouri, were hired to pilot the *Hyson* and the other steamers. The larger gunboats were supported by a flotilla of small Chinese gunboats mounting 6-pounder and 9-pounder guns of native manufacture.

As the guide for this revitalized and streamlined force, Gordon adopted the simple Clausewitzian doctrine that the destruction of the enemy's force was more important than the capture of his towns. From now on the new-found mobility was to be used in the conservation of lives, both of friends and enemies.

For the Taipings, Gordon's policies were to spell surprise, confusion, and panic.

At the request of Li Hung-Chang, Gordon, in April of

1863, tested out his reorganized army in an attack on the Taiping force at Fushan on the Yangtze River, about seventy miles northwest of the EVA's base at Sungkiang. Gordon moved a regiment of infantry with artillery support to Fushan in two steamers, landed behind the city and emplaced a 32-pounder near the wall under cover of darkness. Next morning the gun knocked out the lighter Taiping artillery at point-blank range and blasted down the rebel stockade. Surprised by the sudden appearance of the EVA from the Yangtze when only a land attack had been anticipated, and disheartened by the work of the 32-pounder, the rebels bolted Fushan. The EVA lost two dead and six wounded. This operation made Gordon a hero in the eyes of the Chinese officials, and he was made a Tsung Ping, or brigadier general, in the Imperial Army. This simple success convinced Gordon that his concept of an amphibious campaign was the key to ending the stalemate which had characterized the bloody and ponderous land war.

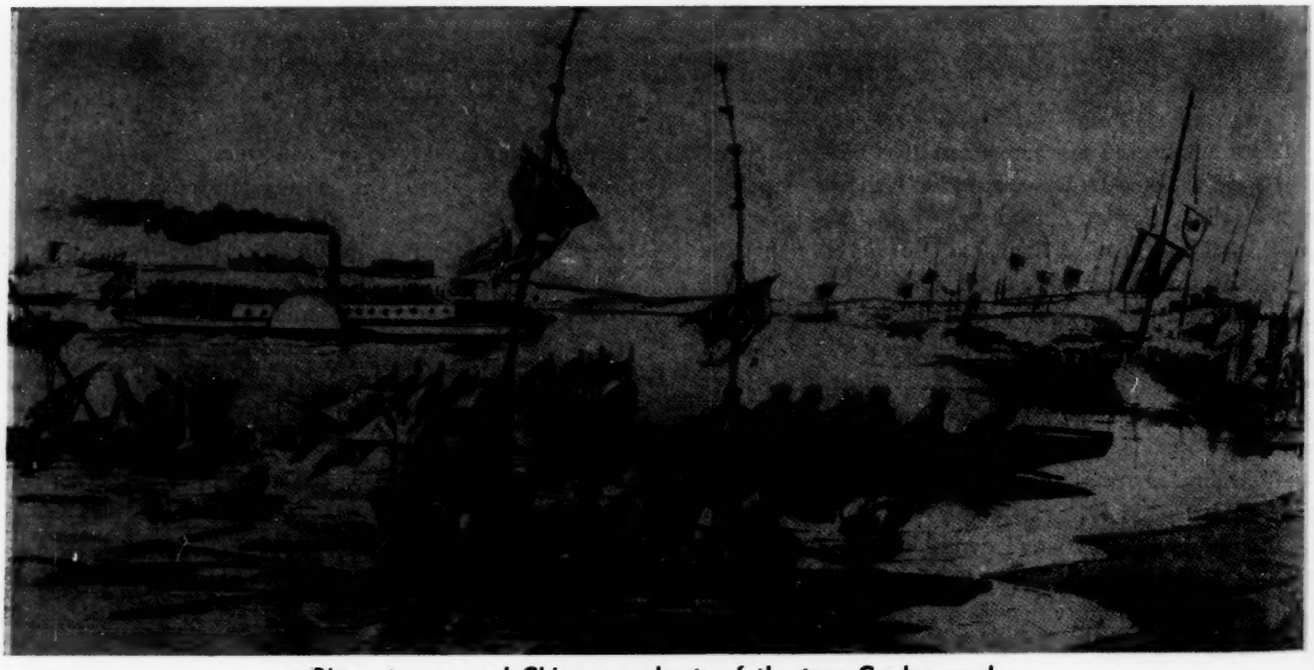
Next, and most important on the list, Gordon and Li Hung-Chang conceived the idea of splitting the rebellion in two by a concerted attack on the Taitsan-Quinsan-Suchow axis. Capture of the three cities would block all north-south communications of the rebels and at the same time open up the entire inland waterway system to Gordon's gunboats.

Taitsan, the smallest and most extended point on the axis, could have been left to wither on the vine, but due to the massacre of 300 Imperial troops under a flag of truce there, Gordon was persuaded by the Imperials to reduce that city first. It proved a tougher nut to crack than Fushan. After an extended bombardment of the city's walls, Gordon launched a frontal assault which the Taiping garrison met with heavy small-arms fire from the top of the walls. As the assault party moved closer it was subjected to a hail of rockets, spears, and stinkpots interspersed with powder bags rigged to produce heavy suffocating smoke. After a pitched battle, however, Gordon's troops succeeded in breaching the wall, and the rebel garrison of some 10,000 men broke and fled.

Despite Gordon's strict orders, many of his troops and officers looted Taitsan as soon as the resistance melted. This infuriated Gordon, and he moved the force to Sungkiang to reorganize it and to introduce further reforms. These included the appointment of a commissary officer and the establishment of safeguards against any further looting. These moves nearly precipitated a mutiny which Gordon welcomed as an opportunity to dismiss some of the worst of his officers. He replaced them with privates and noncoms from the British 99th Regiment which was stationed in the vicinity.

On 24 May 1863, the same month that saw Chancellorsville, Gordon launched his campaign against Quinsan. Included in the expedition were 2,300 infantry and 600 artillery. They were to join the Imperial forces under General Ching who was conducting a futile siege of the city.

Ching, Gordon discovered, was no match for the 12,000 Taipings garrisoning Quinsan and the surrounding country. In fact, the Imperials were stockaded in front of the city and at the moment of Gordon's arrival were in greater danger of being beaten themselves than



River steamer and Chinese gunboats of the type Gordon used

was the city of being captured.

Walls five miles in circumference defended Quinsan. In front of them ran a ditch forty feet wide. The city itself rose like a cone 600 feet out of the plain. Guns mounted on the heights could punish any attacking column.

Ching, despite his own weak condition and in face of the formidable Quinsan defenses, recommended a frontal assault against the city's east gate. To Gordon's mind this involved beating one's head against a stone wall. He had been forced to such an extreme at Taitsan, and the 200 men he lost there convinced him that this type of fighting should be avoided wherever possible.

Gordon boarded the *Hyson* and conducted a thorough reconnaissance of the Quinsan area. At Chunye, a village located eight miles from Quinsan on the road to Suchow and at the juncture of two creeks, Gordon found the key to his problem.

At Chunye, and for a considerable distance in either direction, the Suchow road, main rebel communication artery, ran alongside a deep creek. Some stone stockades protected the town by land and a barrier of stakes guarded the water approaches.

Taiping troops, Gordon had learned, fought bravely on a city or even in a breach. Faced with an unexpected situation, however, such as the one at Fushan, they panicked easily. By striking the Chunye sector, Gordon hoped to repeat the Fushan performance, attacking the rear of the Quinsan garrison.

At daybreak on the 30th of May, Gordon stood out from his camp near Quinsan with a flotilla of eighty boats headed by the *Hyson*. Embarked were Imperial troops, 350 men of the 4th Regiment, EVA, and supporting artillery.

Imperial troops in the smaller boats pulled up the obstacle stakes. Gordon on the *Hyson* dashed through the barrier and assaulted the stone forts. With scarcely a shot, the astounded garrisons left their works and fled, some toward Suchow, others toward Quinsan. The infantry landed and pursued the Taipings fleeing to Quinsan, while the *Hyson*, with Gordon aboard, pursued the Suchow-bound fugitives. The Taipings, confined to a roadway that wound through marshes and small lakes, suffered heavy casualties as the *Hyson* moved cross-country, raking the fleeing troops with her 32-pounder. At six o'clock in the evening, after chasing the enemy for eleven miles almost to the gates of Suchow, the *Hyson* turned around and repeated the shelling on the way back to Chunye.

Here around the stone forts captured earlier in the day, Gordon saw the complete success of his plan. Eight thousand men, the entire Quinsan garrison, frightened by the attack on their line of retreat, were on the road to

The Dowager Empress

Suchow. The *Hyson* arrived at Chunye just in time to prevent the Imperials from breaking before the massed Taipings, and Gordon now had a target even more remunerative than the relatively scattered groups he had pursued earlier. The Quinsan garrison was packed along the roadway shoulder to shoulder.

What followed equaled the terror of Cortes' "La Noche Triste" on the Mexico City causeway three centuries before. The Quinsan garrison turned in their tracks and stampeded back toward the city. Gordon in the *Hyson* and his infantry, landed earlier, joined with the smaller gunboats in pouring shot and shell into the Taiping ranks. By morning the Quinsan garrison was destroyed. Some 3,000 to 4,000 Taipings had been killed on the causeway, trampled to death, knocked off the causeway and drowned, or seeking refuge in the countryside perished at the hands of villagers.

Gordon's casualties, exclusive of his Imperial allies, totaled two killed in action and five drowned. A major objective, worth days of bloody fighting under the old tactics, had fallen in twenty-four hours. Captured along with Quinsan was a Taiping arsenal managed by two Englishmen who disappeared in the confusion. The city provided Gordon with a new headquarters and opened to his gunboats the network of canals and streams which he would use to strangle Suchow.

When Gordon informed his troops that there would be a change of base from Sungkiang to Quinsan the noncoms declared their intention to mutiny. Sungkiang had long been the base of the EVA and the troops were loathe to give up the comforts they had enjoyed there. Gordon had an answer for this. He shot one of the noncoms and threatened to shoot every fifth man among the others. This seemed too high a price to pay for the luxury of Sungkiang and the mutiny evaporated.

The capture of Quinsan gave new heart to the Im-

perials. Li Hung-Chang himself brought up masses of troops to invest Suchow. Gordon repeated his tactics at Chunye and soon had the city isolated from all major contacts with the south where lay the main Taiping forces. But Suchow did not fall as easily as had Quinsan. The Taiping leaders in the city were of a different mettle than the Quinsan chieftains and they clung to the well fortified city tenaciously. The EVA was employed as a mobile shock force, snagging strong points around the Taiping perimeter, one by one.

The stroke that broke Suchow, however, was a neat bit of intrigue engineered by the Imperial general, Ching, himself a former Taiping. He managed to talk some of his former Taiping friends into murdering their best leader, a prince by the name of Moh Wang. With Moh Wang's death, Suchow surrendered.

The Taipings who had arranged the surrender and who had murdered the prince were cut to pieces at the order of Li Hung-Chang, the man who had guaranteed their safety. Gordon, horrified and enraged at the massacre, dashed to his cabin on the *Hyson*, procured a revolver and would have killed Li Hung-Chang. Someone warned the crafty mandarin, however, and Gordon nearly got himself killed trying to protect the families of the murdered chieftains.

This is the only recorded instance during the revolt in which Gordon carried a weapon. In all his battles he carried only a small swagger stick by which he directed the attack. The effect on his superstitious Chinese soldiers was powerful and the stick became known among them as "The Magic Wand of Victory."

So wrought up did Gordon become over the Suchow massacre that he returned the EVA to Quinsan and informed MajGen Brown, successor to BrigGen Staveley as British commander in China, that he refused to fight under the orders of a man who would treat his conquered foes so treacherously.

In February, 1864, however, Gordon reconsidered and took the field again in order to finish off what remained of the T'ai P'ing Rebellion. Strategically, the revolt was broken with the capture of Suchow. The drive along the Taitsan-Quinsan-Suchow axis had plunged a knife through the heart of Taipingdom. All that was left to the Tien Wang was his besieged capital of Nanking and a handful of towns to the north. Fighting throughout the spring of 1864 involved the reduction of these towns. Gordon was forced to use his troops in frontal assaults and on one or two occasions they suffered bloody repulses. Gordon himself was wounded in the leg in an attack on Kintang and spent two miserable weeks trying to direct the army from his litter.

Chanchu-fu fell to Gordon on 11 May 1864. It was the last battle of The Ever Victorious Army. Nanking itself fell to the Imperials in July. The Tien Wang was found dead by his own hand in the garden of his gutted palace.

At the end of May, after Gordon had been informed that the Imperials were prepared to take Nanking by themselves, one final crisis arose for the ever volatile, Ever Victorious Army. What to do with it now that it was no longer needed to suppress the revolt? Gordon knew better than anyone that, in unscrupulous hands, the EVA was capable of destroying the very return to order which he had fought so hard to obtain. "I can say now," Gordon reported later, "that a more turbulent set of men who formed the officers have not been collected together, or a more dangerous lot if they had been headed by one of their own style."

Rather than risk such a change in command on his departure, and without waiting for further instructions from the British ambassador, Gordon dissolved the Ever Victorious Army. Li Hung-Chang concurred in the action and furnished the necessary funds. Faced with a *fait accompli*, the British ambassador also approved.

Both officers and enlisted men were rewarded handsomely. Colonels received a bonus of 900 pounds. A Prussian officer who was blinded in the final campaign received 1,600 pounds. Each enlisted man received a month's pay and a transportation allowance to his home. All of the wounded were granted special bonuses.

Praises for Gordon and his colorful little force came from the Imperial Court, which made him a mandarin; from England, where Gordon had become a national hero; and from a grateful business community in Shanghai.

Gordon left China near the end of 1864 and went on to assignments in India, in the Near East, and finally to the fateful one in the area that was to become the Anglo-Egyptian Sudan. On January 25, 1885, as a British relief column neared, Chinese Gordon was killed defending the city of Khartoum in the Sudan. His death, at 52, produced in England an outburst of sorrow usually reserved for the death of a king.

In China, Gordon had adapted himself completely to the demands of the terrain, his enemies, and his own troops. Hundreds of other professional soldiers had been in China before Gordon but none perceived the amphibious character required for successful operations in the lower Yangtze area.

Gordon came encumbered with no mental blocks. With 5,000 men he destroyed an army of 150,000 by the simple expedient of fighting the war that best fitted the situation.

As his legacy to his beloved profession, Gordon left a history of flexible thought and keen perception. As his legacy to mankind, Gordon contributed one of the most fascinating chapters in history. USMC

KOREA AWARDS

Navy Cross

PFC Palmer S. Braaten, PFC Roy E. Harrison, PFC James E. Jackson, Jr., PFC "R" "A" Jackson, Maj Vincent R. Kramer, SSgt Bruce Mathewson, Jr., LtCol Harold S. Roise, (2d), Cpl Charles V. Rust.

Distinguished Service Medal (Army)

MajGen Christian F. Schilt, MajGen John T. Selden.

Silver Star

2dLt Hugh D. Adair, Jr., 2dLt Birney A. Adams, Capt Kenneth A. Anderson, Maj Gerald P. Averill, PFC Robert G. Backovich, Sgt George L. Baker, 1stLt Joseph S. Bartos, Jr., PFC Walter R. Benson, Sgt James C. Berry, 1stLt Donald R. Brimmer, Cpl John B. Brown, 2ndLt Robert E. Buchmann, 2dLt Bobby W. Burnette, Cpl William E. Callahan, PFC Willis L. Carr, Sgt Denver I. Chambliss, PFC William R. Christensen, Cpl Clyde P. Coates, Cpl Jewel D. Coquat, Capt LeRoy V. Corbett, Sgt John J. Cousans, 1stLt William A. Craven, 1stLt Edward J. Cronin, Jr., Sgt Robert V. Damon, Sgt Antrony J. DeMasi, 1stLt Angus Deming, 1stLt Joseph J. DiMaio, Cpl Marvin T. Dowd, SSgt William G. Dunaway, 1stLt Charles S. Dunne, Cpl Gerald L. Featherly, Sgt Ralph E. Fenton, Cpl Earl D. Flowers, Cpl Edwin M. Gilbert, Cpl Robert H. Gilbert, Cpl HomerGreen, 1stLt John R. Hancock, 1stLt Kenneth W. Henry, Maj Frank S. Hoffecker, Jr., Cpl Donald G. Huyck, Cpl Harold W. Icett, SSgt Joseph A. Jagiello, PFC Thomas M. Justice, PFC Yale S. Kiefer, Cpl Curtis J. Kiesling, PFC Roy E. Koenig, PFC Donald E. Kolling, Sgt Dale E. LaFrance, SSgt James F. Landis, Cpl Warren E. Lee, Cpl Charles F. Lehman, Sgt Gerald E. Livingston, Cpl Thomas Lopez, Sgt Johnson A. Lykens, MSgt Paul A. Martin, Jr., PFC Francis J. Matasovsky, PFC John W. McClain, PFC Andrew J. McIlwain, Cpl Lee N. Mead, Cpl Dale B. Mehlhorn, PFC John R. Miller, PFC Joseph R. Miller, 1stLt Neil B. Mills, 1stLt Grady P. Mitchell, Jr., PFC Donn W. Moling, Cpl Gordon W. Mooney, LtCol James B. Moore, Cpl Thomas M. Morter, 1stLt Franklin J. Murphy, Jr., 1stLt Joseph A. Muser, Sgt George D. Myron, 2dLt John H. Nichols, 2dLt John E. Nolan, Jr., PFC William K. Opulauoho, PFC Jackie R. Parsons, PFC Jack D. Peters, 1stLt Arthur W. Poehlman, PFC Orville L. Prueitt, Cpl Joe Ramos, 1stLt Charles B. Redman, Cpl James R. Rike, Cpl John D. Rucker, Cpl Anthony R. Salena, Sgt Aurelio C. Sanchez, PFC Ward Schupbach, PFC Thomas R. Segar, Cpl Robert J. Shannon, Cpl Daniel J. Sheridan, Maj Frank H. Simonds, PFC Bobby G. Smith, Cpl Robert E. Smith, Cpl Walter G. Smith, Cpl Walter J. Smyk, Jr., 2dLt James O. Stemple, Capt Roscoe R. St. John, Cpl John C. Strenger, Sgt Frederick B. Thompson, PFC Loren E. Tracy, Capt Dean Wilker, Capt Harold P. Williamson, SSgt Robert L. Woosley.

Legion of Merit

Col Robert E. Galer, Col Frederick P. Henderson, (2d), Maj William G. MacLean, Jr., LtCol John T. O'Neill, Maj Wallace J. Slappey, Col William R. Wendt, (2d), Maj William L. Woodruff.

Distinguished Flying Cross

Capt Charles C. Angle, (2d), Capt Gerald C. Armstrong, Capt Robert J. Barbour, Capt Arnold W. Barden, (2d), MSgt Eldon L. Baumwart, Capt William H. Beckett, Capt James H. Berge, Jr., 2dLt Darrell E. Bjorklund, 2dLt James W. Bradley, Jr., Capt Richard C. Browning, (3d), LtCol John R. Burnett, (3d), Capt Raymond J. Butters, (3d), 2dLt Clement C. Chamberlin, Jr., Capt George W. Cole, Maj Howard E. Cook, Capt Byron J. Costello, Capt William B. Davis, (2d), Capt Jack M. DeCamp, Maj John L. Dexter, (3d), Capt John F. Driftmier, (3d), Capt Thomas R. Drinkwater, Maj Frank C. Drury, (2d), TSgt Norwood Edmundson, Capt Robert L. Elliott, (2d), Maj Leroy T. Frey, Capt Leo Gerlach, (2d), Capt Edward J. Godfrey, LtCol Alton D. Gould, (2d), Capt Antonio Granados, Capt Joe R. Greene, (3d), Capt Simon Guidry, Jr., Capt James E. Haines, (2d), Capt Harold J. Henrich, Capt Paul L. Hitchcock, (2d), Maj Henry W. Horst, (2d), Capt Odia "E" Howe, (2d), MSgt Ben R. Hurst, LTCol Darrell D. Irwin, (4th), Capt Clyde R. Jarrett, (2d), Maj Frank C. Kleager, (2d), Capt Elmer F. Koehler, Capt Hyman S. Kovsky, (3d), Capt Arthur L. La Roche, Jr., (2d), Capt Robert E. Lawson, MSgt Robert Lurie, Capt Benjamin G. Martin, (2d), Maj Jay E. McDonald, (4th), 1stLt Don R. McEachern, Maj William P. Mitchell, (6th), 1stLt Dale M. Molsberry, (3d), Capt Charles R. Munn, Capt John P. Murnane, Capt John D. Nadelhoffer, Capt Richard B. Newport, (2d), Capt Frank G. Parks, MSgt Guss H. Pennell, Jr., 1stLt Frederick K. Purdum, (2d), Capt William H. Quick, III, Capt William R. Quinn, Capt Homer D. Ralph, (2d), Maj William H. Rankin, LtCol Herbert D. Raymond, Jr., Capt Collin H. Rushfeldt, (3d), Capt Allen R. Schutter, (2d), Capt Charles L. Seitz, Capt John C. Shoden, Maj Frank H. Simonds, (2d), 1stLt Marshall E. Simonson, Capt John C. Smith, Capt Edward (n) Sokol, Maj Fred A. Steele, Capt John W. Sullivan, (2d), LtCol Vernon C. Ullman, Capt Robert R. Tabler, (3d), 2dLt Walter D. Waddell, Capt Robert F. Warren, Capt Bigelow Watts, Jr., (2d), Maj William A. Weir, Capt Earl H. Yaeger, Jr., (2d).

Navy and Marine Corps Medal

PFC Felix Brillante, Jr., Capt Harold J. Heinrich, PFC Ernest C. Nicolopoulos, PFC Robert H. Nolen, 1stLt John E. Quigley, Cpl Albert Rendon, PFC Andrew Velasquez.

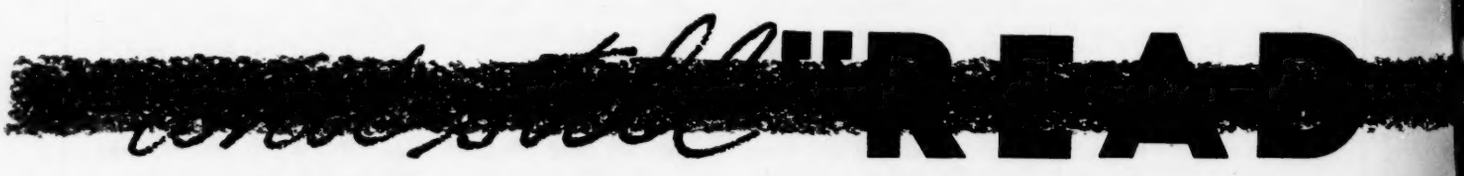
Bronze Star Medal

MSgt Charles R. Adams, PFC James F. Ahearne, Jr., Cpl Anthony G. Alex, TSgt John R. Alexander, Capt Leroy E. Anheuser, TSgt Charles B. Ash, Jr., Maj Franklin C. Bacon, Sgt Henry F. Banaszek, Cpl Douglas R. Barnes, SSgt Robert N. Bartlett, Sgt Herman D. Batson, Capt James H. Berge, Jr., Cpl Donald R. Brandt, PFC Richard D. Brigham, 1stLt Audie W. Brunson, Cpl John G. Budde, Sgt Louis J. Burke, Cpl James B. Caldwell, 1stLt Rollin F. Van Cantfort, PFC Rusario C. T. Cardinale, PFC Merle A. Cecotti, LtCol Arthur A. Chidester, Capt Matthew A. Clary, Jr., TSgt Robert L. Clay, 2dLt Donald L. Clinard, 1stLt Andrew B. Cook, Cpl Clarence A. Copess, PFC Theodore J. Corney, PFC Ronald L. Crain, PFC Michael T. Critelli, PFC Harley C. Dalton.

WE HAVE COME A LONG WAY IN MAP READING. NINE years after the famous island hopping across the Pacific, there is no lack of grid reference systems. On the contrary, we have altogether too many in use. If we stop to consider, we find that we still have the geographic coordinates (latitude and longitude) on the Navy's hydrographic charts; the TAD (Target Area Designation) Grid Reference System, born of necessity back in 1944; the Military Grid Reference System (MGRS); and, in some cases, the British Grid Reference System.

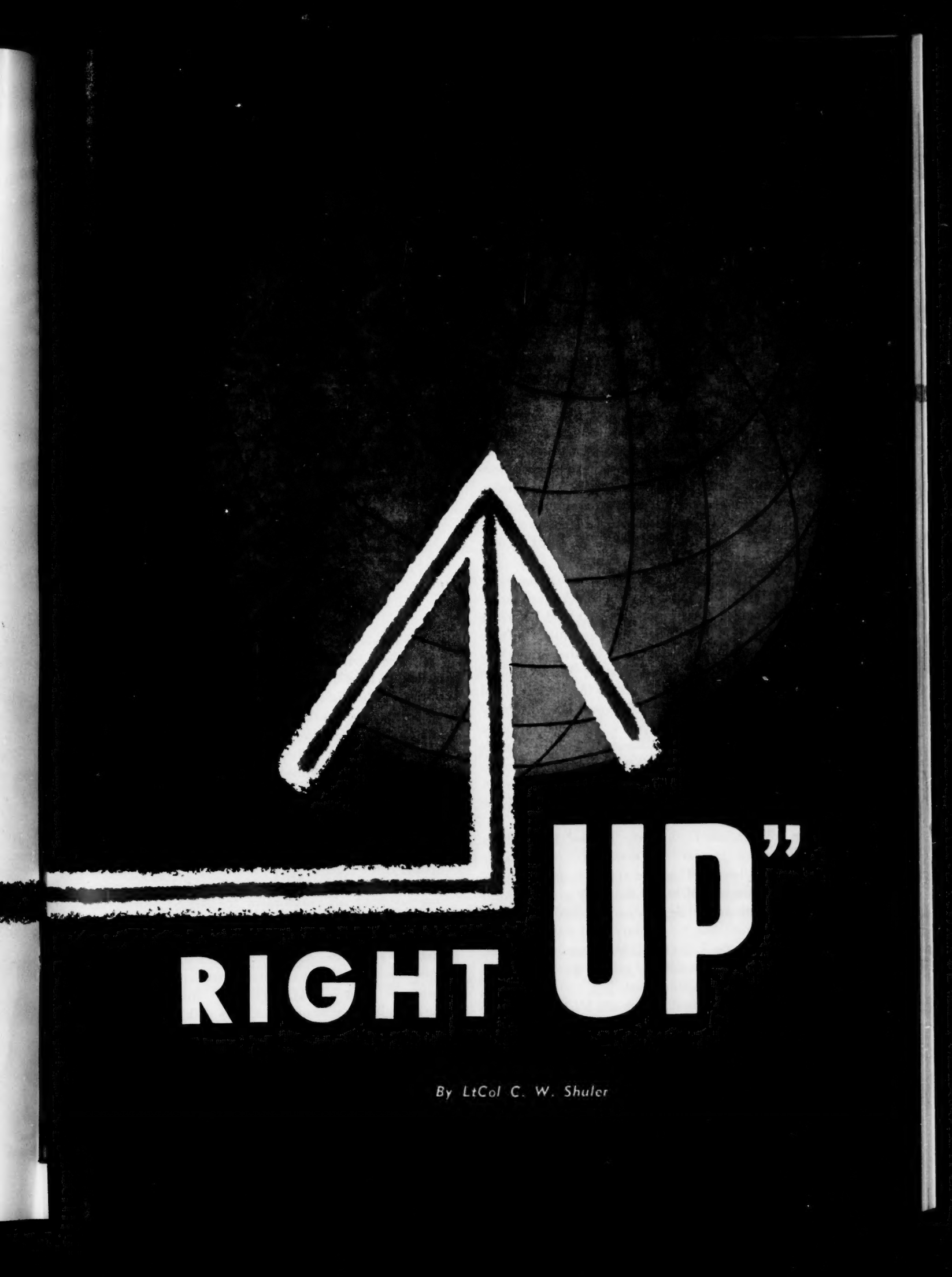
Altogether, we find a situation wherein the Army Map Service prepares topographic maps for the U. S. Army using the Military Grid Reference System, while the Navy Hydrographic Office prepares 1:25,000 bombardment charts and 1:50,000 approach charts with the TAD Grid Reference System. And finally the Air Force uses a modified Geographic Reference System for deep support missions and the MGRS for close support missions. To make the picture complete, the U. S. Navy and the U. S. Marine Corps use the TAD Grid Reference System for amphibious training. It gets complicated, doesn't it? What we need is one simple, easy-to-understand grid reference system—one that can be used by all of the services in a joint operation.

We needed the same thing when MajGen H. M. Smith and RAdm R. K. Turner got together in 1943 to plan their amphibious sweep across the Central Pacific. They found that one of the major problems staring them in the face was the lack of an established grid reference system for the many islands which lay in their path. In fact, at that time the exact latitude and longitude of many of the now famous Pacific islands was not known. When planning for the amphibious assault against the Gilbert Islands, it was decided to just center those islands on a huge square approximately 100 miles wide and divide this square into 1000-yard squares. The usual "Read Right Up" method of reading coordinates was used. Artillery and naval gunfire concentrations were laid out by numbered circles of various diameters. This system of target designation proved pretty difficult to use since new targets required new circles — with the result that one might find a target designated as Number 240 next to one numbered 21.



ILLUSTRATED BY PFC CHRIS MAGALOS

Later on when the Marshall Islands operation began, the grid was laid out in the same manner. But this time



RIGHT UP"

By LtCol C. W. Shuler

the principal islands were divided into a series of rectangles, squares, and variations of rectangles with the target areas numbered from one end of the island to the other. This target area designation worked but, needless to say, it wasn't the answer to the problem.

With the Marianas Islands as the next objective for the Smith-Turner team, a solution to target area designation became a must. The assistant N-2, 5th Phib Force, and the G-2, FMF Pac, got together with the Officer in Charge, Joint Intelligence Center, Pacific Ocean areas and came up with our present target area designation system—the TAD Grid Reference System. The Army's 64th Topographic Company was called in to experiment with sample maps and various inks to find a combination which could be read easily under red and blue blackout lights. Several samples were printed and used in a presentation of the recommended grid reference system (TAD) to CinC, Pacific Fleet, and the senior Naval and Marine Corps commanders at Pearl Harbor. After a session with some argument, Adm Nimitz approved the proposed system for use by his forces. And so the TAD Grid Reference System was first used in the Marianas operation in 1944. It continued to be used in the Palau, Iwo Jima, and Okinawa operations as standard on all 1:10,000, 1:25,000, and 1:50,000 maps and charts.

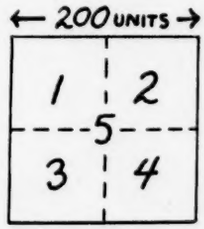
When the planning for operations against the main islands of Japan was initiated, Gen MacArthur's headquarters concurred in the use of the TAD Grid Reference System for use in the forthcoming operation. (These maps and charts were being made by the Army Map Service, the U. S. Navy Hydrographic Office and the Army topographic battalions in the Pacific.) After World War II the Joint Chiefs of Staff agreed that the Navy should use this system when on a shore-bombardment mission. The TAD is now standard for the Navy's 1:50,000 approach and 1:25,000 bombardment charts. Also, the JCS approved the use of the TAD for certain joint amphibious operations when two or more of the services were concerned.

After WW II, the U. S. Army adopted the Military Grid Reference System for maps of approximately 1:250,000 and larger. This grid system is used with the Universal Transverse Mercator Grid for areas between 80 degrees south and 80 degrees north latitude.* Beyond the 80-degree parallels, the Military Grid Reference System is used with the Universal Polar Stereographic grid. (The reason for the two different grids is purely technical and has no bearing on this article.)

Many Marines are familiar with the MGRS, especially if they have served in Korea. However, let us consider both the Military Grid Reference System and the TAD Grid Reference System when used with the Universal Transverse Mercator Grid. The Military Grid Reference consists of a group of letters and numbers which indicate: (1) the grid zone designation; (2) the 100,000-meter square identification; and (3) the grid or rectangular coordinates (numerical reference) of the point expressed to the desired accuracy. A reference designation by this system is written as a continuous number without spaces, dashes, or decimal points. For instance the reference, 18SUT916091, would locate a point within 100 units. This system carried further with a reference, 18SUT91620914, would locate a point within ten units. Normally, the grid zone designation (in this case 18S) is omitted in order to facilitate use of the system.

The TAD reference is normally determined by reading in order: (1) the identification of the 100,000-unit square; (2) a four-digit number identifying the 1,000-unit square in which the point of reference lies; and (3) a letter which identifies the 200-unit square in which the point lies. For example, UT9209U. The 100,000-unit square identification is omitted when not more than one grid appears on one sheet. Accordingly, the given example would then be read 9209U. There are several refinements of the 200-unit lettered square in use by various commands. (Figure 1)

FIGURE 1



The entire question of the use of the TAD Reference System has been re-opened in an effort to effect a standard method of breaking down the 200-unit lettered square in a way which would be acceptable to all services. There is no use to go into the arguments of the individual services for and against the TAD Grid Reference System. By direct statement or by implication, qualified officers from all branches of the Armed Forces, working on a solution to the problem, have pointed out the necessity for a standard system for use throughout the services. There can be no question that one standard system is essential whenever joint operations are to be conducted. Imagine the confusion that could result if, for example, the TAD system were designated for a specific amphibious operation involving all branches of the Armed Forces, but each service persisted in using its own system with its own units in accordance with the suggested compromise that "the system designated for use in a joint amphibious operation will apply at the level of service transfer of information (that is, SACC, FSCC)." Need one go into the difficulties that would result from such a compromise?

Further, because maps and charts with the TAD Grid Reference System extend only twenty-five miles inland, a force landing on any sizable land mass (if the TAD Sys-

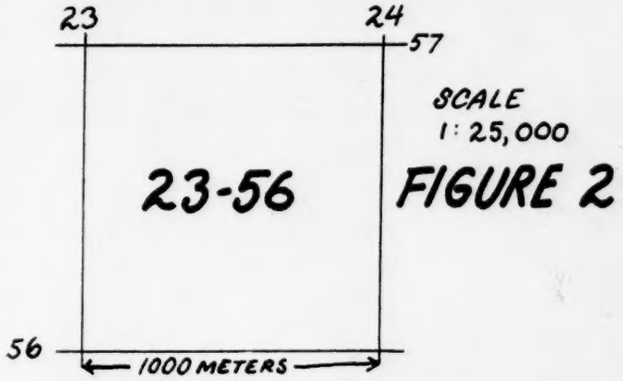
*MGRS has been accepted by NATO for ground operations. Accordingly, Army personnel often refer to it now as the Universal Grid Reference System (UGRS).

tem is prescribed for the amphibious operation by the Joint Force Commander) will be required to shift to the MGRS, or whatever reference system is used on the maps covering the inland areas once the invasion has extended beyond this twenty-five miles.

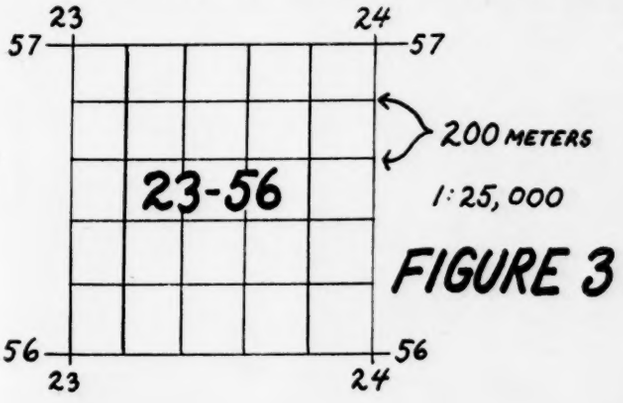
The Marine Corps, I believe, can adopt any system that is universal if the system can be readily understood by all users; can provide rapid, visual identification of location when any portion of the map is used; can provide ease of translation via the various communication systems, especially radio, with the least chance of error; can be readily used by pilots in close support aircraft; can satisfy the requirement of accuracy needed by various supporting arms; and is the same for all personnel and units within any joint operation.

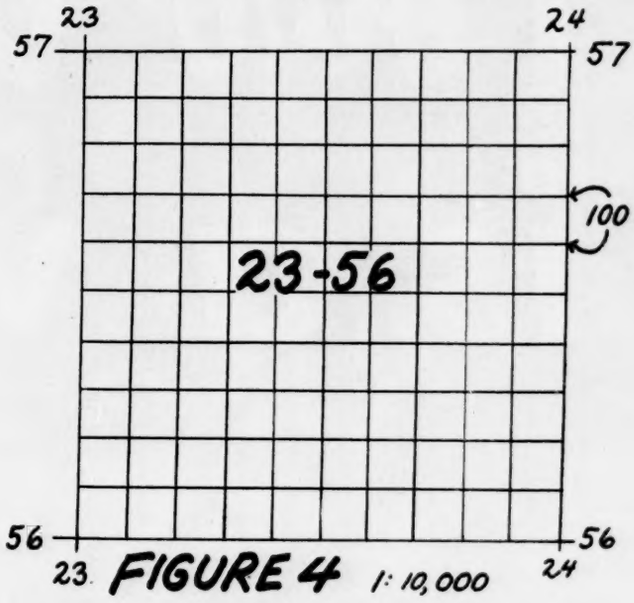
To solve this grid reference problem, I feel it is essential that the Armed Forces of the United States adopt *one* grid reference system for topographical maps and approach and bombardment charts. The system can be based upon the UTM and UPS Grid Systems and meet the basic individual requirements of each of the services. As a solution, I recommend that the present TAD Grid Reference System be superceded by the following modifications of the Military Grid Reference System:

1. That the MGRS include an overprint to identify the 1000-meter grid square, with a dash to separate the east and north grid coordinates. (Figure 2)

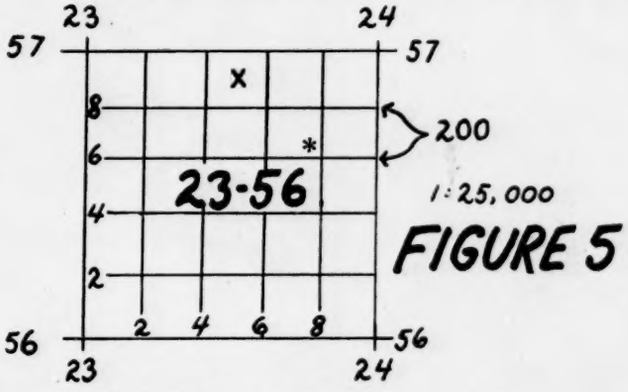


2. That auxiliary grid lining (similar to that for the lettered squares in the TAD system) be overprinted to permit rapid visual identification of a point without the use of a template or other abstract yardstick. Further, that on maps of 1:25,000 scale the auxiliary grid lining be spaced 200 meters apart (Figure 3), and on maps of 1:12,500 and larger scales the auxiliary grid lines be spaced 100 meters apart (Figure 4). That on maps with scales smaller than 1:25,000, no auxiliary grid lines be overprinted.





3. That the refined MGRS be read with a dash between the east and north grid coordinates. (Figure 5)



Point ✻ 2375—5665 (within 10 meters).
Point **X** 235—569 (within 100 meters).

I frankly believe that adoption of the above recommendation will meet the requirements of the Navy and Marine Corps. And there is reason to believe the Army and Air Force will accept such a modification.

Whether this or similar recommendations are adopted, or whether the TAD Grid Reference System is retained, I feel that it is essential that only one grid reference system be used by all units participating in any joint operation. This system must be acceptable to the participating services. Why use different systems? USMC

Four-Deuce is a winner

By Capt Edward E. Kaufer

ILLUSTRATED BY CPL ROY THOMPSEN

IT IS NOT VERY OFTEN THAT THE MARINE CORPS SHELVES A PIECE OF EQUIPMENT only to bring it back again eight years later in a new and more important role. The 4.2-inch mortar can claim this distinction.

Used as a chemical weapon by FMF units before WW II, this mortar saw little service during the war, and by late 1944 there were few Marines in the field who had seen it in action.

There were some "old timers," however, who still thought there was a billet for the 4.2-inch mortar in the FMF. They didn't see it as a chemical weapon, but as a heavy mortar to fill the gap between the 81mm mortars of the battalions and the artillery in support of the regiment.

By 1949 these men saw their proposal adopted, and in October of that year both the 1st and 2d Marine Divisions had 4.2-inch mortar companies. And the regimental commander at last had a weapon of his own.

In spite of its slow start, the 4.2 mortar has established itself as an excellent infantry support weapon. It has, at the very least, pointed the way to a solution of the problem of providing a heavy and effective weapon of opportunity that is sufficiently flexible and mobile for use on the regimental level. Undoubtedly, more efficient weapons will be developed to fill this need, but at the present, the 4.2-inch mortar has earned its place in the regiment.

The technical data concerning the 4.2 mortar is available in the appropriate manuals and need not be repeated here, but a few important facts should be emphasized. First, since the mortar is rifled, it puts out more accurate fire than smooth-bore mortars. And, even more important, this allows a far more efficient shell design—an artillery-type projectile. The sight is also patterned along artillery lines, graduated entirely in mils, and is mounted on the lip of the barrel. All cross-leveling is accomplished by keeping the sight leveled by rotating it around the muzzle while traversing the mortar. Two men are required for efficient operation, one man to keep the sight leveled while the other lays on the aiming stakes. The deflection limits of the mortar are limited. Further traverse is obtained by shifting the standard, the equivalent of a bipod.

The rate of fire is quite high. A well trained crew can give the enemy a terrible pummeling for five minutes, and from then on keep a respectable number of rounds hitting his positions.

The mortar is very mobile considering the size of its ammunition. Its crew can keep it within supporting distance during rapidly moving situations in spite of a limited maximum range. However, the mortar was intended as a chemical warfare weapon to deliver a high rate of fire over comparatively short periods. When it is

used extensively for long periods it is likely to break down. Careful preparation of positions will minimize this fault, and properly employed the 4.2 mortar can deliver a terrific amount of accurate fire.

We made some modifications to the Table of Organization to meet combat conditions in Korea. The first thing we did was to transfer the communications men and forward observers from the mortar platoons into company headquarters. This improved efficiency and provided more equitable sharing of headquarters personnel when necessary to divide the company into reinforced platoons. We added a forward observer to company headquarters, enabling us to assign one to each battalion. It would have been a good idea to have an observer with each company but the company communications net wouldn't stand the extra load. Furthermore, working through a special liaison section probably would slow up fire delivery, an important characteristic of the comany. In Korea, forward observers with the 81mm mortars, artillery, and even air did a lot of spotting for us, thus offsetting our own lack of observers.

The fire control system used in the company fire direction center (FDC) is just about the same system that artillery uses. Horizontal control operators and computers from company headquarters perform the same duties as in an artillery fire direction center. The T/O provides for a survey section but we displaced so often it seldom got a chance to set up. We did use the men in the section to fill in as additional horizontal control operators and computers when the company was divided into reinforced platoons. The T/O also provides for a fire direction NCO, but not for a gunnery officer. The duties of the gunnery officer are supposed to be performed by the company executive officer, but since he has a full time job reconnoitering for new positions and conducting liaison with the battalions, he cannot adequately supervise the vital operations in the FDC. The company commander also has too many other matters requiring his attention to handle the job, so he usually ends up by making one of the platoon leaders his gunnery officer.

We weren't in Korea long before we realized that we would have to organize our own security section. Normally the company is located just behind the infantry battalions, but in Korea the battalions often were on top of hills and the mortars were set up in the valleys with no one around to give them protection. So we built a security section around our two light machine guns and manned it with company headquarters men. From then on we were all right.

The communications section of company headquarters, and the wiremen and radio operators from the mortar platoons performed well. A radio operator and a wireman always traveled with the forward observer attached to each battalion. The wireman's job was to lay wire to the battalion switchboard, thus saving time for the team that was laying wire from the mortar company to the battalion. Whenever possible we used wire communications rather than radio. This was always feasible in stable situations and sometimes was even possible in the attack.

We used SCR-300 radios for our company fire control net and for contact with battalion and regiment. These radios were generally satisfactory; however, when one of them failed, it always seemed to happen in the midst of a fire mission. Fortunately, we also had a TBX and an SCR-610 radio.

In Korea, Marines have fought as part of a land army as well as in their primary role of a landing force. This diversity of missions gave us a good opportunity to evaluate our 4.2-inch mortars and will be helpful in determining what part they will play in future operations.

The 4.2-inch mortar company is of particular value in landing operations since it provides a small but heavy caliber weapon which can be landed early and emplaced while the beachhead is comparatively shallow. The amtrac is ideal for landing the company since it can carry the mortar, mortar crew, and a heavy load of ammunition directly to the position. The use of landing craft is impractical. Although the mortar itself is small and comparatively light, the ammunition is too heavy a load for jeeps and handcarts once the company has hit the beach. But amtracs can also be used in forward displacement and, more important, can maintain the ammunition supply.

The regimental commander can land his 4.2-inch mortar company quite early, whenever the beachhead is deep enough for its employment — about 500 yards. He will usually use his mortars in general support of the regiment. In this way, the fires of all mortars can be massed at critical points. The volume of fire is effective against all but the heaviest prepared positions, and these fires also can strengthen the regiment during an early counterattack. If necessary, on an extremely shallow beachhead, crossfires from positions near the flanks can be laid down along the regimental front.

Although the 4.2-inch mortar company performed exceedingly well in the extended land operations of Korea, we had to devise a few special methods to solve problems not encountered on the beach. In many instances, particularly in defense, we found that the extended regimental frontage prohibited the use of mortars from a central company position. We got around this by reinforcing the mortar platoons with men from company headquarters, and then having the platoons operate as "little companies" from separate positions. Whenever possible we avoided splitting up the company, for that

usually prevented the massing of fires on critical points. In rare instances we were able to co-ordinate the fires of the platoons when they were separated, but the limited range of the mortars usually made this impossible.

The terrain in Korea often made it necessary for us to attach our mortar platoons. In the attack, when the battalions were widely separated, we usually put a reinforced platoon with each battalion. In the defense, when the battalions were holding individual strong points, we felt the limitations of the 4.2-inch mortar most. In these instances the battalion perimeters were usually too small for the mortars to be emplaced far enough behind the defensive sectors to attain adequate coverage. When we could get the mortars far enough behind the lines to permit coverage without reducing the number of mortars on a given sector below four, the fires frequently proved decisive in breaking up enemy attacks.

ONE OF OUR BIGGEST HEADACHES was ammunition supply. The mortars could be used very effectively in the attack if we could get enough transportation to keep the ammunition moving. When we got hold of two or three 6x6 trucks, in addition to the two provided by the T/E, we could keep the company within effective supporting distance of the attacking battalions even over the most difficult terrain. With this number of trucks we could move the entire company in two moves, with enough ammunition to deliver effective fires. "Enough ammunition" is at least a half unit of fire.

The fires of the company are extremely effective even when the enemy is in well prepared and overheaded positions. On several occasions we placed over one thousand rounds on a single objective; and even though no delay fuse was available to penetrate the bunkers, we knocked out most of the enemy positions.

I hope I have emphasized the value of the present 4.2-inch mortar company. Needless to say there is plenty of room for improvement. Most important we must correct the faults of the mortar itself. Along this line I would recommend a mortar capable of firing the shell we have now, or an equally heavy, high capacity, spin-stabilized shell at greater ranges. This mortar should be rugged enough for prolonged firing at maximum ranges. It should have a base plate which will permit wide traverse when being moved and a new sight mount to allow for more rapid response to fire commands. It seems to me this new mortar could be kept at about the same weight as our present one. (With the new alloys available it should be possible to build a more rugged mortar without adding to the present weight.) However, since we need motor transport due to the weight of an adequate supply of ammunition, the weight factor doesn't matter too much as long as a crew still can handle it.

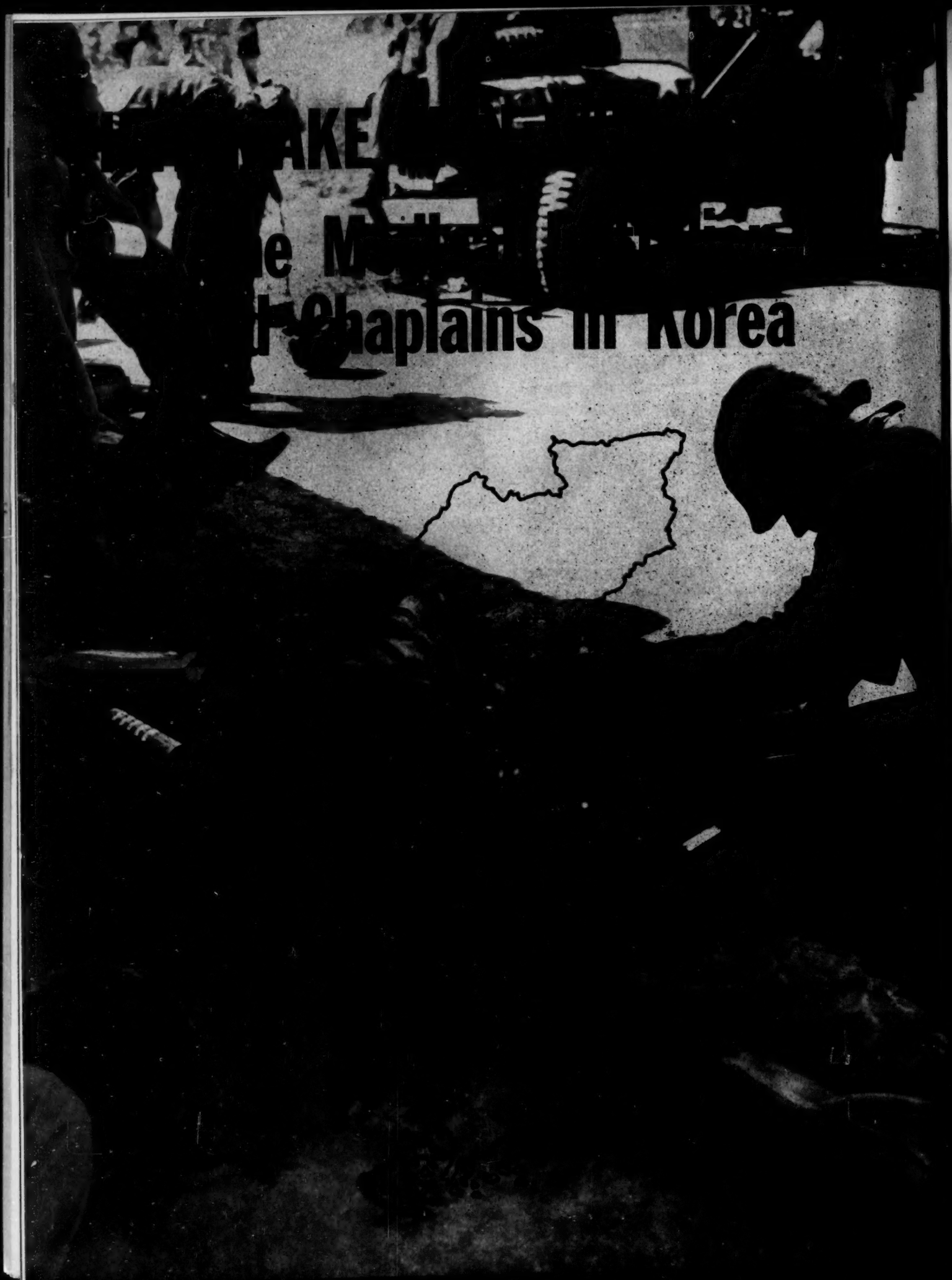
The present ammunition needs little improvement. The basic shells are excellent; however, we could use a wider selection of fuses with increased fuse ranges. The propellant charges should be reduced in number. While a large number of possible charges aids accuracy, the loss of time in preparing ammunition cancels this advantage. The present sight can be set to one mil in both elevation and deflection and with a revised firing table should be entirely adequate for maximum ranges without using more than fifteen charges of propellant.

The mortar company can be improved by changing its organization to include another mortar platoon and revising the platoon T/O to include only the crews, instrument man, platoon sergeant, and platoon leader. If we did this we could add another platoon to the company with only a slight increase in company headquarters personnel. We would need an additional five men in headquarters to support the new platoon: one forward observer, two horizontal control operators, one truck driver, and one cook. We would also need an additional platoon leader and a gunnery officer.

The addition of another truck driver leads to the question of additional vehicles to transport a larger company. The foregoing recommendations are proposed for a 4.2-inch mortar company to be used in amphibious operations. In the event that the operations extended inland beyond the normal beachhead, five to twelve additional trucks would be required. It would seem advisable to increase the number of trucks in the regimental motor pool rather than assign a large, and possibly unnecessary, number directly to the company. The proper number could be drawn from the pool as required, leaving the excess to help out in the chronic shortage of transportation.

THE FINAL RECOMMENDATIONS concern communications. The SCR-300 radio has proved satisfactory in Korea where reception is, to say the least, somewhat unpredictable. The new model radio of the 300-type is reported to have many improvements, including an increased range. This radio would be desirable in the company; and if a mortar of longer range becomes available, it would be essential. Of course, newer radios providing more dependable communications on the tactical and command nets would be very welcome. However, enough radios of all types should be allowed to provide for situations where the company is divided.

Marine divisions have earned the reputation of being heavily armed, hard hitting units. The 4.2-inch mortar companies have added much to this striking power. Whether the company is retained in its present size or enlarged, it has certainly earned its place and promises to play an important part in future operations. US MC


AKE
e M
r Chaplains in Korea

THE HELICOPTER FLUTTERED DOWN TO KIMPO WITH two badly wounded Marines. One of them breathed with difficulty after receiving a machine gun bullet through the chest, and the other was suffering from the shock of mortar fragments in the abdomen.

Only an hour and a half before, both men had been engaged in the savage fight of the 5th Marines for the northwest approaches to Seoul. They were evacuated from the firing line in an M-26 tank, after being taken through the escape hatch. Corpsmen administered first aid and blood plasma at the battalion station, then prepared the men for further evacuation in a "flying ambulance" holding two litters.

At the clearing station the Marine pilot looked on with concern as the patients were removed from the helicopter to be taken to the emergency operating room. The faces of both were gray and haggard, as seen through the plexiglas hoods of the litters. Their hope of survival seemed slim, and the pilot might have been astonished to learn that the mathematical chances were about 199 to one in favor of each patient coming out alive.

This estimate is based upon statistics of the 1st Medical Battalion during the Inchon-Seoul operation of the 1st Marine Division from 15 September to 7 October 1950. During the three weeks, Companies A, B, and C processed a total of 2,484 surgical patients. Of that number, only nine died after reaching the station, and among them were six deaths following major surgery.

The proportion of patients surviving after evacuation, therefore, reached the figure of 99.43 per cent.

These surgical statistics cover the most critical cases, a majority of which were wounds. During the Inchon-Seoul operation, however, the 1st Med Bn treated a grand total of 5,516 patients for all causes, including ailments ranging from acute appendicitis down to such anticlimatic ills as piles, hernia, sprains, and blisters. This total breaks down into the following categories:

2,811, Marine; 78, Navy; 358, Army; 322, ROK and KMC; 1,908, civilian; and 39, POW.

Altogether, the results of the 1st Med Bn in Korea were enough to make Florence Nightingale turn enviously in her grave. When that courageous fighter for surgical reforms arrived at the Crimea in 1855, the death rate was forty-eight per cent among British and French soldiers admitted to the foul holes passing as hospitals. During her first year Miss Nightingale reduced the losses to less than ten per cent, largely as a result of insisting upon decent food and cleanliness.

Four more years were to pass before the Swiss humanitarian Henri Dumont, moved by the sufferings of the neglected wounded at the battle of Solferino, wrote a book leading to the foundation of the International Red Cross. The principle of adequate care for war's victims, therefore, is less than a century old, having lagged far behind the other military sciences.

Until the Civil War, this country, like less progressive nations, went little further than providing bandages for the wounded and a bullet to bite during the agony of amputations without an anesthetic. It might appear that generals and admirals would have demanded reforms on practical grounds, considering the percentage of men lost to active service by wounds or diseases deemed trivial today. But this frightful wastage was taken for granted until comparatively recent years, and Asiatic armies still rely on the military surgery of past ages while fighting with the weapons of the twentieth century.

No issue finds the democratic nations and totalitarian powers further apart in ideological respects than the value placed on human life. During World War II the Soviet forces accepted as a matter of course a ratio of casualties that would not have been tolerated by a state respecting the rights of the individual. But even in totalitarian Russia the state made every effort to restore the wounded individual to active duty if he could be salvaged by modern medical science. The Korean and Chinese Reds, on the contrary, have not shown much practical solicitude for their casualties, let alone humanitarian concern. As a result, the world's highest ethics of military medical care have been pitted in Korea against the lowest, and it remains to be seen whether the enemy's policy can be justified even on materialistic grounds.

Humanitarian values come first with the American

By Lynn Montross

In cooperation with the Historical Branch, G-3, Headquarters, U. S. Marine Corps, the GAZETTE herewith presents another in a series of official accounts dealing with Marine operations in Korea. Prepared by writers and researchers of the Historical Branch, these articles are based on available records and reports from units in Korea. Also to be treated in this series:

Marine Supply and Logistics in Korea

Admittedly it is too soon to write a definitive history of Marine fighting in Korea. Not only are enemy sources lacking, but even Marine and Army records are still incomplete. Articles of the length to be used in the GAZETTE, moreover, do not allow space for more than an outline of operations which will ultimately be given the detailed treatment of a monograph.

But timeliness is also an end to be sought, and these preliminary narratives are based on Marine and Army reports received up to this time. These articles are presented in the hope that GAZETTE readers will feel free to add to the incomplete record. This is an invitation, therefore, for you to supplement the existing record. Send your comments and criticisms, as well as any other information you can make available, to the Historical Branch, G-3, Headquarters, U. S. Marine Corps, Washington 25, D. C.

forces, but it is noteworthy that the division hospital of the 1st Med Bn set a record of sending fifty-eight per cent of its Inchon-Seoul casualties back to their units for further duty. And though no comparable statistics are available for the enemy, Red operations in Korea have unquestionably been weakened at times by losses from epidemics as well as military action.

The best and latest American methods were put into effect by the division surgeon, Capt E. R. Hering,[1] and the 1st Med Bn, commanded by Comdr Howard A. Johnson, which reached Inchon with the rest of the 1st Mar Div just before the amphibious landing. Most of the men had received some previous field training, and Co C had seen action with the 1st Provisional Marine Brigade in the Pusan Perimeter. This combat experience included the first experiments in evacuation of casualties by Marine helicopters.

CARE OF THE WOUNDED in a Marine division begins with the complement of two medical officers and forty hospital corpsmen attached to each infantry battalion. Two aid men advance with each platoon to supervise the evacuation of casualties from the firing line. The wounded man then walks or is carried to the battalion aid station by litter bearers, consisting of Marine enlisted personnel. There the two medical officers and the rest of the corpsmen give treatment to put the casualty in condition for further evacuation.

From now on, the division medical battalion is in charge. This unit includes a Headquarters and Service Company in addition to the five letter companies which have the responsibility for casualty care. Three are collecting and clearing companies, one being available for each infantry regiment. The collecting section evacuates casualties from the aid station to the clearing section, which is a highly mobile sixty-bed field hospital with a surgical team for treatment of non-evacuables requiring resuscitation and immediate surgery. The remaining two letter companies are hospital companies, staffed and equipped on a 200-bed basis to provide definitive care and hospitalization within the division area.

At this point it would be an oversight not to mention the twenty-eight Navy chaplains, both regular and reserve officers, attached to major units of the 1st Mar Div at Inchon. Representing the Protestant, Catholic, and Jewish faiths, the chaplains' section has a primary mission "to minister to the spiritual needs of the troops, 'bringing men to God and God to men.'" A secondary mission is "to minister to the sick, the wounded, and the dying," and some of the most daring rescues of wounded men on the firing line have been credited to chaplains. More than one Marine's life has been saved because the "padre" risked his own to give first aid, and it is the duty of these officers to conduct burial services and write letters of consolation to the next-of-kin of deceased personnel.

The amphibious mission of a Marine division adds to the necessity for medical self-sufficiency, since the evacuation of casualties to rear areas may be interrupted during a ship-to-shore attack. A solution for this problem was found at Inchon, where a revolutionary new technique was initiated to co-ordinate medical care with the complex tactics of a great amphibious operation.

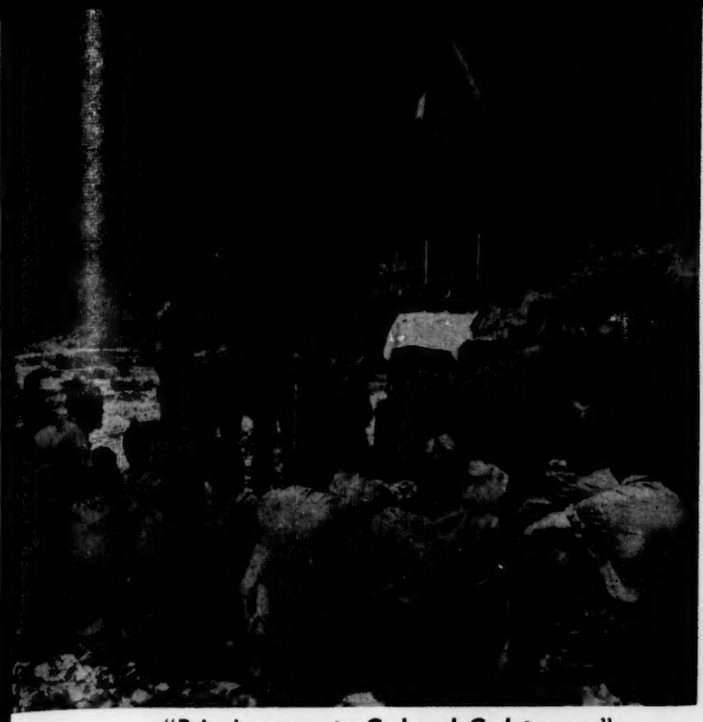
Military surgeons use the term "golden period" in reference to the few hours after a man has been wounded in a vital part of the body. Resuscitation and definitive care can still save his life, but delay may be fatal. Despite this danger, definitive care often had to wait in past amphibious operations until the casualty could be evacuated to a hospital ship after temporary treatment on the beach.

Navy medical officers tried a bold new technique on D-day at Inchon when four surgical teams, each made up of three doctors and ten corpsmen, hit the beaches in LSTs shortly after the landing of the assault troops. Two other teams waited offshore under enemy fire in improvised operating rooms aboard LSTs loaded with explosives and napalm. Practically all the Marines wounded in the Inchon assault were treated on the beaches by one of the four advance surgical teams. Then, if further care was indicated, the causalties were sent aboard the LSTs for surgery and hospitalization or evacuation to hospitals in Japan.

SOMEWHAT SIMILAR surgical teams had been used in the South Pacific landings and the Normandy operation of World War II. But Inchon is distinguished as the first amphibious assault where a carefully plotted medical technique was integrated with military tactics. The surgical teams had been drilled like men on a football squad, and on the night of D-day Team No. 2 received ninety-five wounded Marines, many requiring chest or abdominal surgery, without the loss of a single case. A specialist in plastic surgery was available for facial wounds requiring surgery which would leave no unsightly scars.

Such a spectacular success was achieved by the teams at Inchon that they were recalled to Japan afterwards to act as preceptors to other teams in process of organization. Within a year the number of these teams had grown to twenty-two on standby duty in the Far East. When not needed for a special military operation, they were integrated into the staffs of hospitals or hospital

[1]USN or USNR ranks being held by all medical officers and chaplains mentioned in this article, these are omitted as repetitive. Marine ranks are distinguished by the letters USMC.



"Bringing men to God and God to men"

ships to keep in constant training for their team jobs by working with the wounded.

A tremendous task awaited the 1st Med Bn at Inchon. On the morning of D plus one, Cos A and B put equipment ashore for a division hospital. A school building at Inchon was selected as the location, and shortly after noon on D plus two the hospital was prepared to receive casualties.

By D plus four the line of evacuation had grown so long that a clearing station was set up at Kimpo Airfield by Cos C and D to serve the rapidly advancing 5th Marines as that regiment prepared to cross the river Han and assault Seoul. Although Kimpo had been captured from the enemy only the day before, the medical officers arrived with previously sterilized instruments and were prepared to operate on casualties only sixty-five minutes after their trucks reached the new location.

The 1,900 casualties given life-saving aid at Kimpo during the first week included not only Marines but U. S. Army personnel and Koreans of all political persuasions, civilians as well as soldiers.

The 1st Marines, pushing ahead toward Seoul on a route parallel to that of the other regiment, was supported by a provisional platoon of medical officers and corpsmen who set up a mobile clearing point for casualties to be evacuated to Kimpo. The 7th Marines did not land until D plus seven, and Co D of the 1st Med Bn was attached to that regiment when it attacked north of Seoul.

The securing of the city led to a sharp drop in the casualties treated at Kimpo and Inchon. And on 28 September Co B was displaced from Kimpo to install a forward hospital at Seoul which became the principal clearing station during the last nine days of the operation.

From start to finish, the need for helicopter evacuation was reduced to a minimum by the comparatively good roads of the Inchon-Seoul area. Ambulances were the main reliance of medical officers who never compromised with their ideal of resuscitation and definitive care without delay for critical cases.

Stateside blood donors would have been gratified to know that such care, as Capt Hering defined it, often "meant whole blood in adequate amounts, administered in time to obviate prolonged shock; in time to bring the serious [casualties] back into condition so that immediate surgery, if indicated, could be performed at the most opportune time." This standard of timeliness has been the principal factor in establishing an overall mortality rate among American casualties wounded in action of twenty-three per one thousand in Korea as compared to an incidence of forty-five per thousand in World War II.

The chaplains earned a share of the credit for prompt evacuation of the wounded during the three weeks of Inchon-Seoul. Three of the twenty-eight chaplains were themselves wounded, giving their group a ratio of casualties comparing with that of combat troops.

Eleven other chaplains of the 1st Mar Div have won the Purple Heart in subsequent operations. Among the fifty-one additional honors of the chaplains' section in two years of Marine operations are twenty-two Bronze Stars, two Silver Stars, two Legion of Merit awards, and twenty-five letters of commendation.

ON 7 OCTOBER the 1st Mar Div was relieved by Eighth Army elements in preparation for a new amphibious landing at Wonsan on the east coast. The Marines and other X Corps units were then to strike across the peninsula and join forces with the Eighth Army, advancing up the west coast, to complete the defeat of the Korean Reds. The collapse of enemy resistance was so sudden, however, that this plan had to be amended. As it proved, the 1st Mar Div made an unopposed landing at Wonsan on the 25th, and its units were soon widely dispersed in northeast Korea on a variety of patrolling and blocking missions.

This meant that the 1st Med Bn must also cover a great deal of ground, since the elements of the division were separated early in November by 118 miles from north to south. The division hospital was first established by Cos A and B at Wonsan immediately after the landing. Then as the 7th Marines began an advance to the Chosin Reservoir, the need for a second division hospital in the Hamhung-Hungnam area was filled by Co A. It was a timely move, for on 3 November the 7th Marines had the first large-scale fight of American troops with the Chinese Communist invaders who had infiltrated through

the mountains to the aid of the beaten Korean Reds. The regiment cut a CCF division to pieces in a four-day battle, but this result was not accomplished without losses. The first wounded Marine reached the hospital at Hungnam at 1500 on 4 November, and before midnight 150 had been received.

Wounded CCF prisoners were among the total of 386 casualties given care at Hungnam from 4 to 9 November after being evacuated by motor and rail. A clearing station had been set up at Hamhung by Cos C and E, attached to the 5th and 7th Marines respectively, and heated railway cars were used for evacuation over the Korean narrow-gauge line running from Hungnam to Chinhung-ni at the foot of the mountains. Critical casualties were flown from Hamhung to the hospital ship *USS Consolation* at Wonsan or to base hospitals in Japan.

OF THE 386 CASUALTIES received at the Hungnam hospital from 4 to 9 November, only one died of wounds after admission. The next two and a half weeks brought a sudden drop in 1st Mar Div casualties as an ominous lull fell over the front. During this period the major units of the division advanced to the Hagaru area, at the foot of the Chosin Reservoir, while detachments provided security at Koto-ri and Chinhung-ni along the MSR to Hamhung. As the center of gravity of the division shifted, the 1st Med Bn moved its command post and the remainder of its personnel from Wonsan to Hungnam, followed by the *USS Consolation*. There the division hospital had been enlarged to 400 beds, and a new annex was set up at Hamhung with 100 to 150 more.

The line of evacuation became overlong, however, as the 5th and 7th Marines were ordered to advance from Hagaru to Yudam-ni in preparation for a combined offensive of X Corps in the east and Eighth Army in the west. Medical officers felt the need of a hospital-type facility at Hagaru in addition to the clearing stations operated by Co D at Koto-ri and Chinhung-ni. Plans were made, therefore, for Cos C and E to combine their resources at Hagaru and establish a medical supply dump as well as forward hospital. Additional surgical teams were to be flown to Hagaru by Cos A and B from the division hospital.

Execution of these plans had just begun when the great CCF counteroffensive exploded on 25 November. The enemy hurled back the Eighth Army in the west, and on the night of the 27th it was the turn of X Corps as eight Chinese divisions fell upon the 1st Mar Div. The 5th and 7th Marines were isolated at Yudam-ni in sub-zero weather, with the main supply route cut behind them as far south as the Koto-ri area. The main CCF blow fell on the 28th, when the casualties of the Marines amounted to 939 — the largest total for one day ever recorded by the 1st Mar Div in Korea.

Of this number, 539 had been wounded, and 161 killed or died of wounds. The 239 non-battle casualties were nearly all frostbite cases, some of them so severe that amputation was indicated. Enemy roadblocks prevented ambulances from using the fourteen-mile mountain trail leading to Hagaru from Yudam-ni. Temperatures ranging from ten to twenty below zero added to the difficulties of the inadequate number of medical officers and corpsmen at Yudam-ni.

LtComdr John H. Craven, chaplain of the 7th Marines, and his colleagues went sleepless for three nights while assisting the medical personnel. A few of the most serious casualties were evacuated by helicopter, but the great majority had to wait for transportation in vehicles.

Other Marine positions along the MSR were also attacked. Fox Co of the 7th Marines, guarding a critical mountain pass halfway between Hagaru and Yudam-ni, fought for survival against Chinese in estimated regimental strength. This position was surrounded by the enemy, so that corpsmen could only give first aid to casualties and make them as comfortable as possible.

The perimeters at Hagaru, Koto-ri, and Chinhung-ni, held by the 3d, 2d, and 1st Bns respectively of the 1st Marines, were not neglected by the enemy. But it was Hagaru that had the hardest fight of all, for the CCF made tremendous effort to take this key position. Marine engineers, truck drivers, and clerks from the division command post were pressed into service as infantrymen, and several penetrations by screaming Chinese threatened to overrun the medical tents.

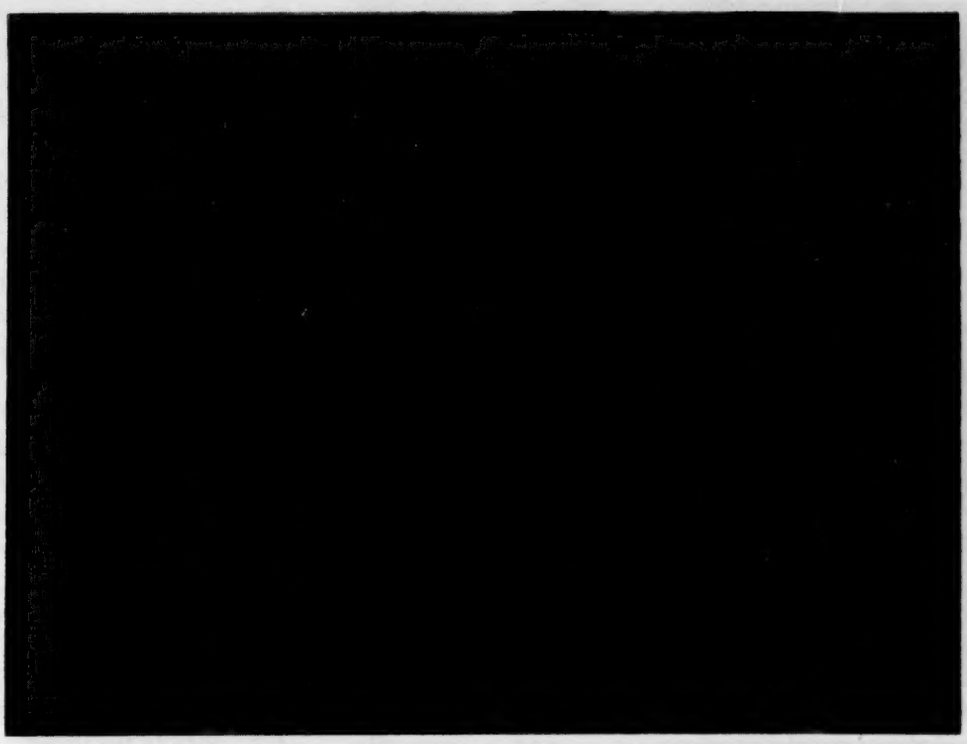
Repeated attempts were made by Marine tank and infantry patrols to clear the MSR. All were turned back by overwhelming enemy numbers. Even a task force composed of three tank-supported infantry companies met with disaster on the 29th while escorting supplies and reinforcements from Koto-ri to Hagaru. The tanks and infantry in the lead got through with heavy losses, and the elements in the rear fought their way back to Koto-ri. But the service troops and trucks in the middle of the column were compelled to surrender after exhausting their ammunition in an all-night fight.

This outcome convinced the Marine command of the necessity of remaining on the defensive until the separated groups could fight their way out as a division. During the next two days, therefore, the 1st Mar Div presented to the enemy five bristling perimeters having no contact with one another save by air.

Seldom in U. S. military history has a group of medical officers faced a heavier responsibility or a greater opportunity for service than the situation confronting Capt Hering and the heads of the 1st Med Bn. All were confident as to the ability of the 1st Mar Div to cut its way through eight CCF divisions to the seacoast. But

there was an "if" in the equation—the Marines could come out fighting *if* their hundreds of casualties were evacuated.

This was the problem of the medical officers. They had anticipated the possibility of an emergency in their advance planning, but enemy action stopped the convoy of medical supplies sent to Hagaru. These supplies reached Koto-ri, however, where they proved useful at a later stage of the breakout. For the time being, the 1st Med Bn had to take to the air. Helicopter evacuation was limited by the lack of enough machines to meet a fraction of the demands. It was the L-5, an Army observation plane comparable to the OY, that became the workhorse of the battalion as more surgical teams were flown to Hagaru and serious casualties evacuated on the return trip.



At Hagaru, transports flew out almost three thousand casualties in three days

Such efforts were on too small a scale to be more than a partial solution, since it was estimated that total Marine casualties amounted to nearly 2,000 by 30 November. The number was increased by a thousand, moreover, when three battalions of the 7th Infantry Division were cut off east of the reservoir and badly mauled. LtCol Olin D. Beall, USMC, led Marine volunteers who crossed the ice of the reservoir in jeeps and sleds to rescue wounded or frostbitten soldiers. These casualties were taken into the crowded hospital tents at Hagaru as charges of the 1st Med Bn.

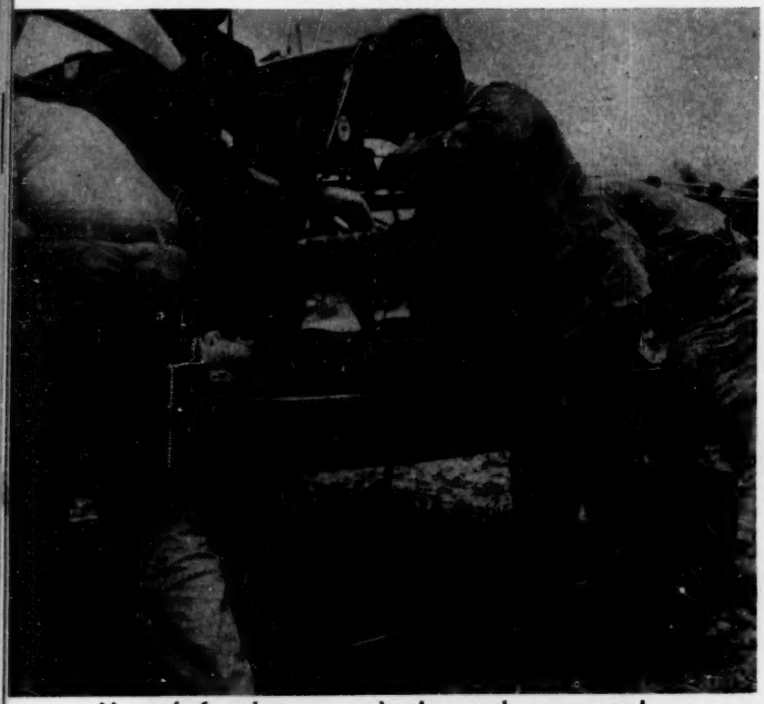
Medical officers now recognized that their only hope for a solution of the evacuation problem lay in the use of the C-47 strip at Hagaru, commenced on 18 November by Marine engineers working day and night. Soil frozen as hard as concrete slowed up the dozers and scrapers, and drivers silhouetted by floodlights were a target for enemy snipers. It was a remarkable feat under the circumstances to have completed 2,900 feet in twelve days. The "minimum" prescribed by engineering manuals was 6,000 feet, but so pressing was the need that the half-finished strip had its test on 1 December after having been in the hands of the enemy two nights before.

Anxious eyes were fixed on the first Air Force C-47 as its wheels touched the frozen runway, and it seemed a miracle when the pilot made a safe, even if bumpy, landing. Better yet, he compounded the miracle by taking off successfully with twenty-four wounded Marines.

Thus was launched one of the most prodigious air evacuations of casualties in military history. Capt Hering had charge of the medical situation at Hagaru, and the airstrip boiled with activity as C-47s landed and took off that afternoon. About 450 casualties were evacuated before dusk to the division hospital at Hungnam, the *USS Consolation*, or various hospitals in Japan. This number was doubled the next day, and 929 wounded or frostbitten soldiers of the 7th Infantry Division were evacuated by air on 3 December.

DURING THESE THREE days a great effort was made to clear the hospital tents at Hagaru before the 5th and 7th Marines arrived from Yudam-ni. Their breakout had been preceded by a surprise maneuver on the night of 1 December when the 1st Bn of the 7th Marines took an "impossible" route across the mountain tops to effect the relief of Fox Co and secure the critical pass near Sinhung-ni. After a march of frightful hardships over a trackless waste of snowdrifts and boulders, the column accomplished both of its missions the next day while bringing out its own dead and wounded.

Five days and nights of battling the Chinese had left Fox Co with eighty-nine wounded, including six of the seven officers. These casualties had received only a minimum of care in a hilltop perimeter surrounded by



Never before have a man's chances been so good

Battlefield surgeons take advantage of the "golden period"

the enemy. They were given further treatment by the doctors and corpsmen of the 1st Bn, assisted by Chaplain Craven.

Meanwhile the main body of the two regiments had begun the move from Yudam-ni to Hagaru that morning. It had been possible up to this time to evacuate only 156 of the most critical casualties from Yudam-ni by helicopter or observation planes. The hundreds of remaining casualties were taken out in the vehicles, the most serious cases being wrapped in their sleeping bags and secured by ropes. Every Marine walked who was able to hobble along and carry a rifle, including men with light wounds.

From the start the column had to fight its way through defended roadblocks, so that new casualties were incurred hourly. Sub-zero weather accounted for scores of them. Men struggled up the mountainsides to drive back the Chinese, then had their feet frozen before they could find an opportunity to change socks wet with perspiration.[2] Some of the victims, pinned down for long periods by CCF fire, were found with their feet encased in a shell of ice.

Capt Hering had hoped to remove the most critical casualties by air as the column proceeded. This project had to be abandoned, however, after the loss of two helicopters which crashed in narrow mountain passes. Corpsmen gave the wounded first aid, and litter-bearers brought them off the hillsides to the column. Only a few heated ambulances were available for resuscitation by means of serum albumen, followed by injections of antibiotics. The wounded were then placed in sleeping bags and lashed to the trucks.

EVERY INCH OF space on vehicles was occupied after the casualties of 1/7 and Fox Co brought the total up to 2,400. The head of the column wound its way into Hagaru on the afternoon of 3 December and the rear arrived the next morning. Even the Marines who had escaped bullets and frostbite might have been considered casualties of exhaustion, sleepless nights, and digestive ills resulting from a diet of frozen "C" rations. But all men who could pull a trigger were needed, and Capt Hering was guided by a Spartan example when sorting out frostbite cases for evacuation by air. This precept was set by LtComdr Chester N. Lessenden, regimental surgeon of the 5th Marines, who refused to be evacuated and continued at his duties after both feet were painfully frozen. Capt Hering passed personally on all controversial cases, and he approved for evacuation only those in worse shape than Lessenden. Apparently this was not too severe a test, for the surgeon of the 5th Marines suffered no permanent injury.

Marine morale was so high at Hagaru that some of the men selected for evacuation were reluctant. The warming and feeding of thousands of casualties was a tremendous task for overworked medical officers and corpsmen assisted by chaplains. Every hour counted as this group set itself the goal of evacuating all helpless casualties, so that the division could begin the next stage of

[2]These casualties led to the adoption of the thermal boot which kept the feet of the 1st Mar Div warm and dry throughout the following winter in east Korea.

the breakout on 6 December. The C47s and R4Ds took out more than 1,000 wounded and frostbitten men from Hagaru on the 4th, and seventy-eight were removed by L-5 planes that same day from Koto-ri. This left 1,400 casualties at Hagaru and fifty at Koto-ri, yet the hospital tents of both perimeters were cleared before dusk at 5 December.

"Without air evacuation," declared Capt Hering a year later, "casualty handling would have been a debacle and the entire progress of the withdrawal slowed immeasurably."

The achievement is the more remarkable because the Hagaru airstrip was within sight of the Chinese who surrounded the perimeter. Fortunately, the only plane to crash was protected by Corsairs until a rifle company could dash outside the perimeter and rescue the casualties and crew, all of whom survived the accident.

SUCH CRITICAL MEDICAL items as whole blood, antibiotics, litters, and blankets were brought to Hagaru by air-drop. The hospital tents did not long remain empty on 6 December, for 300 new casualties were received as the head of the division column fought its way toward Koto-ri. These patients were treated by medical personnel who remained in the perimeter, and the C-47s flew them out that day. The medical officers and corpsmen marched out with the last troops, whereupon the Chinese occupied the perimeter and airstrip they had failed to take by assault.

At Koto-ri an observation-plane strip had been hurriedly lengthened by Marine engineers until it could be used by C-47s or R4Ds if the pilots were both skilled and lucky. About 600 more casualties were received in this perimeter after the division completed the march from Hagaru. Six surgical teams worked around the clock, giving definitive care or performing operations, and all casualties were evacuated by air in a single day before the column set out for Chinhung-ni.

The worst was over on the 10th when the column reached the foot of the mountains, and the next day found the 1st Mar Div in the warming tents at Hamhung. Marine casualties since 26 November amounted to a total of 7,350, including 4,675 who had been evacuated by air.

The survivors had only four days to wait before embarking as the first division of X Corps to sail for south Korea. This was the beginning of the "amphibious operation in reverse" which ended on Christmas Eve with the successful redeployment by Task Force-90 of all UN troops in northeast Korea.

The 1st Mar Div passed from X Corps into Eighth Army reserve. After several weeks in an assembly area at Masan, the Marines began a series of offensive and defensive operations in coordination with Army divisions. Officers and corpsmen of the 1st Med Bn were put to no such test as the Reservoir evacuations, but the wild, mountainous terrain of operations Killer and Ripper was a constant challenge in the spring of 1951. One of the best solutions to the evacuation problem in such areas was the training of hired South Korean laborers as litter-bearers. Some of these former A-frame porters won the admiration of the Marines by the courage and endurance they showed in rescuing wounded men under fire.

Medical techniques improved with experience as the war continued. Evacuation by helicopter, initiated by the Marines, won general adoption in Korea because of the reduction in the ratio of casualties dying of wounds. By the end of 1951 about 300 helicopters were being used by the Army, Air Force, and Marines for this purpose alone, and the *USS Consolation* had been dubbed a "carrier" after installing a flight deck of 60 x 60 feet for the landing of helicopters with casualties.

Prevention as well as cure of serious wounds was a subject of experiment, and in the summer of 1951 a joint Army-Navy mission went to Korea for field tests of a new type of body armor developed for the Marine Corps. Casualty figures of the war up to this time had shown that nearly thirty-five per cent of the men killed in action and thirty per cent of those dying of wounds had been hit in the thorax or abdomen. About one-third of all fatalities, in short, were caused by wounds in parts of the body which might have been protected by body armor.

The 1st Mar Div and the 2d Inf Div were selected in the early autumn of 1951 as the two major units to try out a new thoraco-abdominal vest weighing between six and seven pounds. Tests proved that this body armor could be worn without too much encumbrance, and that the compressed Fiberglas and Nylon had a satisfactory protective value. Various changes in design were suggested by trials under combat conditions, and among the benefits was a good psychological effect on morale. Detailed results of the joint Army-Navy tests are still regarded as classified material, but it is no secret that modern, lightweight body armor appears to be on the way to widespread adoption.

Not much can be said, as veterans will agree, in praise of the war in Korea. There have been more hardships than thrills in those somber Asiastic highlands, more moments of fatigue than glory. But even Korea has its advantages, and gains have been made in military surgery —such important gains that never before has a man gone into combat with as good a chance of coming out alive and whole. USMC

Next Month: Marine Supply and Logistics in Korea.

KEEP 'EM COMBAT

"FOUR ON — EIGHT OFF, DAY ON AND DAY OFF! Hmmmmm, that's not so bad. Heard the Sergeant of the Guard saying the other day that he used to stand the same duty day on and stay on. Wonder what we'll have on that day off — more school on Interior Guard no doubt. Sure wish we could get out and bust a few caps. Field training and firing would look mighty good on the training schedule."

Private Burns' reflections while reading the company bulletin board hit upon a situation which exists throughout the Marine Corps. Without knowing it, he had voiced the problem of how to improve training at our numerous small posts and stations.

During the last few years, Headquarters has taken into consideration a man's MOS when assigning him to a small post or station. Still, men have been detailed to duty at posts and stations with no billet for their primary MOS. For instance, it is not unusual to find an artilleryman, tankman, or infantryman well qualified in his respective field, performing the various security duties associated with a naval establishment. The present policy of "type tour of duty" obviously was established to assure that the same men do not perform all of the security duty while other men spend all of their time in the FMF.

Although this policy has much to be said in its favor, the fact remains that an artilleryman, tankman, or infantryman separated from his functional field for a period of two or three years, loses some of the technical knowledge he gained while in a Fleet Marine Force unit. Personnel assigned to shore establishments from recruit training or duty other than with the Fleet Marine Force, often emerge from these assignments with an NCO rating based on book learning alone. Such learning is invaluable but it is not enough to enable men to handle a Fleet Marine Force assignment.

To augment this classroom instruction, I propose that each post and station be assigned a secondary mission of Fleet Marine Force nature such as infantry, artillery, communications, etc.

To illustrate such a plan, let us assume a Marine barracks is given a secondary mission as an automatic antiaircraft artillery unit. On a normal day fifty per cent of its personnel will be on guard, ten per cent on mess duty, sick list, leave, etc., and forty per cent will be available for training. These figures indicate the barracks could organize two batteries of AAA artillery. With guard duty on a day-on, day-off basis, each battery would receive two days' training a week with Fridays and Saturday mornings set aside for field day, inspection, or training in general military subjects. Units trained in this manner could be quickly assembled during times of emergency and assigned to the Fleet Marine Force.

Available training facilities should be the main consideration when the organization is assigned. Artillery units should be spotted at detachments located near am-

TREADY

By 2dLt William W. Boynton

munition depots and range facilities. Posts and stations with no facilities available for field training should be assigned service-type outfits. Communications or other restrictive duty personnel could be trained as radio-telegraph operators, wiremen, and electronics repairmen. Command-post exercises should be held monthly to inject realistic situations into the training and to evaluate the degree of proficiency attained by personnel. Detachments located at Naval air stations could be assigned as infantry units, since these stations usually have space for field exercises and live firing problems.

For this plan to work, a definite personnel assignment pattern would have to be drawn up. To this end the primary MOS of an officer or NCO could be considered when ordering him to a post or station. Every effort should be made to send him to the barracks that is conducting training in his field. In the case of personnel assigned directly from recruit training or activities not associated with the Fleet Marine Force, they would end their normal tour of duty at a shore establishment well qualified to go into the field with an FMF unit. This type of training program would prove most beneficial in time of national emergency.

The trouble with present instruction at posts and stations is that the same basic subjects appear again and again on the training schedule. Once a Marine has completed boot training he is usually considered fairly well qualified in basic subjects, so why subject him to a repetitious program which at its best usually results in a dilatory interest? Let the training in basic subjects be conducted along with the daily routine, and concentrate on devoting the extra time available to the practical training of individuals in their primary MOS.

Many of us recall what happened early in July 1950 when the first Marine Corps elements were ordered to the Far East. The highly efficient manner in which the 1st Provisional Marine Brigade conducted itself in subsequent fighting in Korea is now history. Still, in order to bring this brigade up to strength prior to sailing for Korea, it was necessary to order a number of personnel to the brigade from posts and stations throughout the United States. A large percentage of these men were combat veterans of World War II, but there were those who had never had any type of Fleet Marine

Post and station Marines may know the Guidebook verbatim. But are they just treading water in their primary MOS?

Force duty. In most instances these non-combat-wise regulars were well versed in interior guard duty, the pack and equipment, nomenclature and functioning of individual weapons, and many other subjects included on the basic training schedule. However, once they landed in Korea it was of little consequence whether or not an individual knew his M-1 rifle weighed 9.5 pounds, or that the knapsack had a coupling strap buckle! What counted was whether he could handle his job in the field.

In future planning it would seem highly advantageous to consider the proposal of assigning various posts and stations collateral duties predicated on principles similar to those previously mentioned. Then, in time of national emergency, if the Marine Corps were called on to provide an expeditionary force which required augmentation of FMF units, such augmentation could readily be made from a reservoir of trained personnel.

Replacements for the security force troops ordered from posts and stations to Fleet Marine Force duty could be assigned from the Reserve component. These Reserves, while carrying out the normal security duties of the post, would begin training in the FMF-type duty of the shore station to which assigned, and would in time become available for reassignment to Fleet Marine Force units as needed.

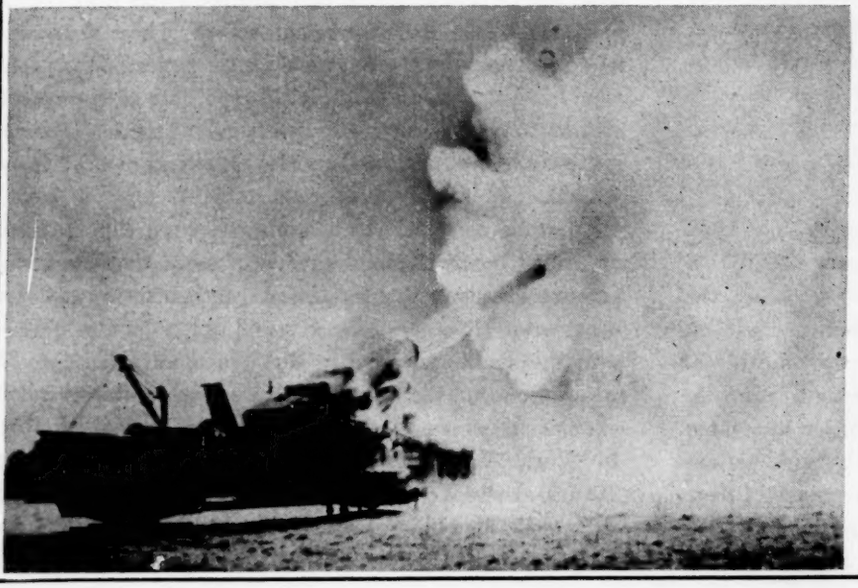
The time element, which is always paramount in time of armed conflict, would thus be met in that no great amount of advance training for replacements would be necessary.

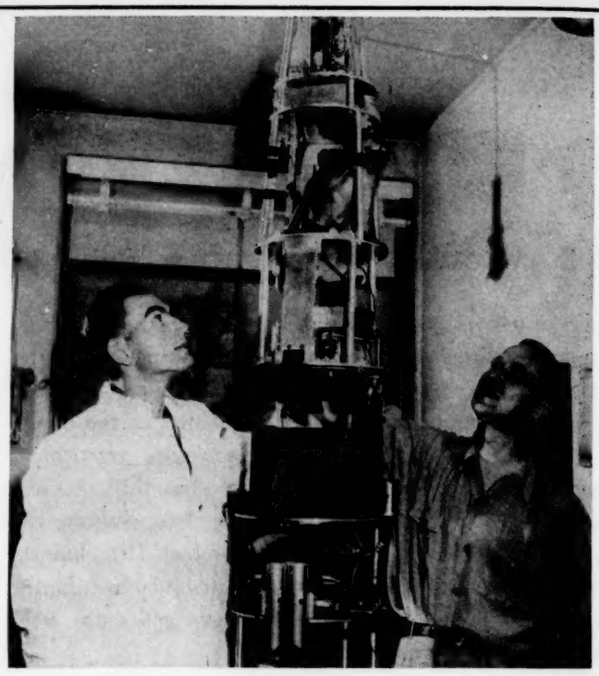
It should be remembered that practically all Reserves who were in on the initial landing at Inchon were former combat veterans or had received a great deal of training in World War II. This desirable situation may not always exist. We must have a working plan to take up the slack when this reservoir of combat veterans is no longer available. USMC

In Brief

In 1921, an American living incognito on Japanese-held Palau Island in the Pacific submitted a secret document to Headquarters Marine Corps. It not only predicted Japan's war aims in remarkable detail, but also told step by step how to capture the Pacific islands if it should become necessary. Two years later Earl Hancock Ellis (actually a distinguished Marine major on special intelligence duty) died on Palau under circumstances that still are shrouded in mystery. Taking cognizance of his prophetic planning ability, the Marine Corps has just dedicated a new amphibious warfare building in Ellis' honor at Marine Corps Schools, Quantico, Va. Ellis Hall, said General Lemuel C. Shepherd, Jr., Commandant of the Marine Corps, will stand as a significant memorial to a man whose outstanding work was a big factor in winning the Pacific war. The new structure, an addition to the Marine Corps Education Center, will be used for instruction in amphibious warfare.

The Army's much-vaunted atomic artillery gun, a whopping 280mm caliber, made its debut recently at the Ordnance Corps' Aberdeen proving grounds by firing a high explosive charge (below). The weapon is capable of firing both conventional and atomic projectiles. It is transported by a specially designed vehicle consisting of two truck-tractor units, one at each end, with the carriage and mount supported between them. The gun, says the Department of Defense, can be put into position and readied for firing faster than any other heavy artillery piece of similar design now in use.

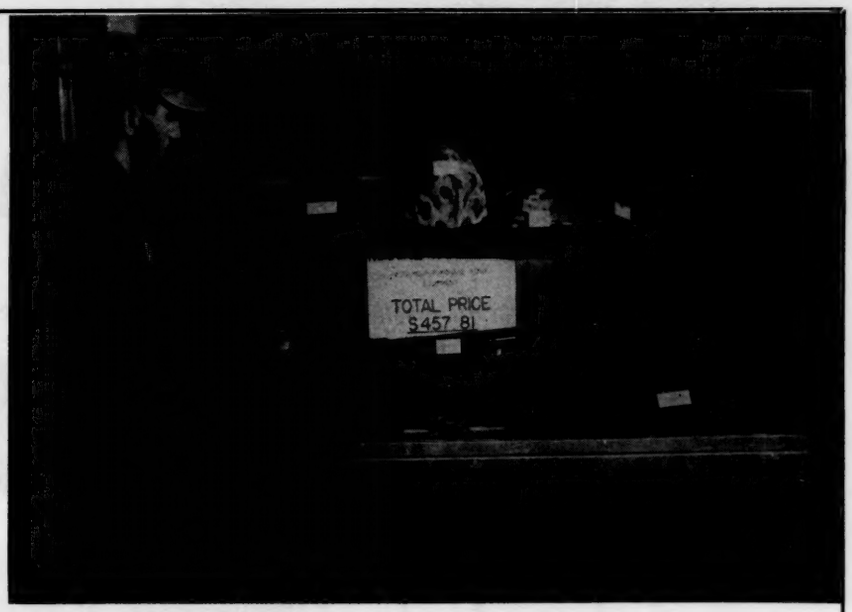




When a monkey rockets forty miles into space perhaps he has a right to look as blandly nonchalant as this one (above). Instigators of the historic flight were staff members of the Aero Medical Laboratory, Wright Air Development Center, Dayton, Ohio. By measuring the monkey's reaction during the experiment it was possible to arrive at conclusions concerning man's reaction to possible zero-gravity flight speeds. The photograph was taken immediately after the test and shows the monkey in the same rocket head in which he made the trip.

Marine air-ground teamwork in Korea has produced a system so effective in reducing enemy anti-aircraft fire during an attack that no close support aircraft were shot down by the enemy opposing Marine lines from July to October. Nothing new in weapons has been added. Here's how it works: Just before an air strike, all known enemy AA positions are plastered by artillery fire right up to the moment the planes begin their strike. Immediately after the aircraft leave, the artillery zeroes back on the enemy AA guns again. Success is due to split-second timing and closest coordination between ground and air.

Efforts by the Marine Corps to increase the cost-consciousness of all hands is bearing fruit in this country, at overseas posts and stations, and in combat zones. Typical of the emphasis on economy is this display at the lobby of the post theater at Marine Corps Schools, Quantico (right). Exhibiting the personal arms and equipment of a Marine in training or in combat, the display hits home with this sign: "Marine Taxpayer: You help purchase your equipment. Total price $457.81." As may be presumed, it's a traffic-stopper.



Men of the 1st Marine Air Wing in Korea are carrying on for MSgt John T. Cain (left), observation plane pilot who began a school for Korean youngsters just before he turned up missing in action after 106 combat missions. Cain started his back-to-school movement for the waifs by financially underwriting the education for three boys and six girls. He planned to enroll six more a week later, but never got the chance. Other Marines, however, had heard of his project, and now they're doing it on their own—in Cain's name.

Seemingly catching up with Buck Rogers' concept of things aeronautical is this new high-altitude flying suit (right) developed for the Air Force after six years of experimentation. In event cabin pressure is lost, the air tubes along pilot's arms and legs will pressurize the suit and thus provide the necessary protection against "thin" air of the stratosphere. Integrated with the suit is a device which automatically counteracts the blackout danger faced by pilots who must fight extreme gravity forces while maneuvering their planes. The latest one-piece helmet features a heated face piece and built-in breathing apparatus and radio equipment.

43 YEARS OF

By LtCol Harry C. Olson

THIS IS A BRIEF HISTORY OF THE INFANTRYMAN'S friend—motor transportation. The hero is a combustion engine mounted on four wheels and the story has to do with how he grew up from an awkward and sometimes unwanted infant to be the most sought-after buddy of any outfit.

At the turn of the century, motor cars were a novelty, there were few roads suitable for automobiles, and during wet weather even these roads were impassable. Trucks were non-existent—adequate power units and drives for them were still in the planning stage. Hence, military employment of the motor vehicle had not been given serious thought by the Marine Corps.

The horse and mule were standard transport for difficult terrain operations prior to World War I. The great horse and mule breeding ranches of the southwestern United States provided the main sources of supply. In this connection, an early Congressional lobby was formed to prevent the Marine Corps and Army from motorizing their forces. The motor vehicle was condemned by the horse breeders not on the grounds that their investment and income would be threatened, but that our forces would become immobilized. It was not possible, they argued, for motor vehicles to traverse difficult terrain. But the lobby was a failure and the breeders disappeared because it was decided that only motor vehicles could be used satisfactorily for transport overseas. After extensive tests, it was found that at least one month was required to put an animal in working condition after a two or three month period at sea; an engine had only to be warmed up.

The hero is an engine on four wheels, and the story has to do with his growing up

MOTOR TRANSPORT

In the month of July 1909, Marine Corps motor transport came into being. A Studebaker "30" was purchased for use in Washington on mail runs and other official business. It was a colorful mode of transportation—106-inch wheelbase, four-cylinder motor capable of producing thirty horsepower, 32 x 3½-inch tires, and a brake operated by contracting and expanding bands on both rear wheels. The cost proved to be enormous. The Studebaker "30" listed at $3,500 without cape top, and $3,635 with cape top.

From the purchase of the first vehicle in 1909 to the year 1917, the Marine Corps purchased a total of seventy-two vehicles. During this eight year period, only four vehicles were completely worn out, condemned, and sold. Maintenance problems, however, were tremendous. So much so indeed that initial contracts for motor vehicles included maintenance clauses requiring factory mechanics to reside for periods in areas where the purchased equipment was to be employed. Little by little, though, personnel of the Marine Corps picked up the tricks of the trade and were charged with maintenance responsibility.

In the summer of 1914 the Quartermaster gave consideration to the purchase of a four-wheel drive and steer truck. After testing all four-wheel drive vehicles currently available, a board recommended that the Jeffry "quad" (quadruple drive) truck be accepted. One was purchased and further tested at the Naval Academy at Annapolis.

Both Jeffry and Nash quad trucks were sent to Haiti in 1915. They performed very satisfactorily despite mechanical weaknesses in the universal joints and differen-

tials, and the narrow solid tires which were not adapted for crossing soft terrain. Until the end of World War I, they remained the last word in cross-country transportation. Equipped with four-wheel drive and four-wheel steering mechanisms, they were capable of being maneuvered over trails quite impassable for the ordinary truck. The four-cylinder engine was adequate and actually gave little maintenance trouble. Nevertheless, during rainy weather horses and mules continued to be the order of the day.

But if not altogether satisfactory, motor transport was at least popular. When the Marines landed at Vera Cruz in April of 1914, with no motorized transportation in the initial landing force, three Benz trucks of five-ton capacity were found at the customs house, and were the subject of a midnight requisition. They were, incidentally, paid for later.

In these expeditionary campaigns the Marine Corps' need for an armored vehicle to be used against strong points of enemy resistance was acutely felt. The Commandant requested the Secretary of the Navy, and he in turn persuaded Congress, to appropriate $20,000 for two armored cars. In collaboration with the Armored Motor Car Company of Detroit and the King Car Company, a prototype vehicle was developed.

The King armored car was the first vehicle to be adapted for tactical use by any United States service. But satisfying as such a compliment was, the tactical employment of a three-ton armored vehicle was difficult. With rear-wheel drive the vehicle was suitable only for operation on good, hard-surfaced roads. As it turned out, its primary mission was publicity. The armored car toured all principal recruiting stations to help obtain volunteers for Haiti and for World War I.

In World War I, among the first Americans to land with equipment in the advance guard of the AEF was a small detachment of Marines equipped with Jeffry quad trucks. This detachment was used in connection with Base Section No. 4, located at LeHavre, France.

FOUR BASIC trucks provided the heavy transportation during World War I and the following post-war period. The Liberty truck was designed and produced by the Army; the FWD, the Jeffry quad, and the Nash quad were manufactured by private concerns. World War I left the usual surplus, and, as might be expected under these circumstances, the Marine Corps was given little choice in vehicles for the next decade. Various models and modifications of the Liberty truck resulted in the use and re-use of surplus vehicle stocks.

In March 1917, the first regulations for operating and caring for vehicles were promulgated. Some were practically identical with those in the manual today. Undoubtedly they lengthened the life of the vehicles; and, as a matter of record, it was not until 1937 that the Marine Corps condemned and surveyed the last Class "B" Liberty truck equipped with hard rubber tires. The Class "D" Liberty, equipped with pneumatic tires, was the last of the Liberty trucks used by the services. It remained until forced to give way to transportation capable of greater speeds.

Eventually the FWD took the place of the Jeffry and Nash quads. It had a number of drawbacks. For example, the brake rods were within the turning arc of the front wheels and it was a common experience to have a brake rod snap when turning too sharply, thereby causing the front wheels to jam. It was, however, a forerunner of the artillery prime mover of World War II.

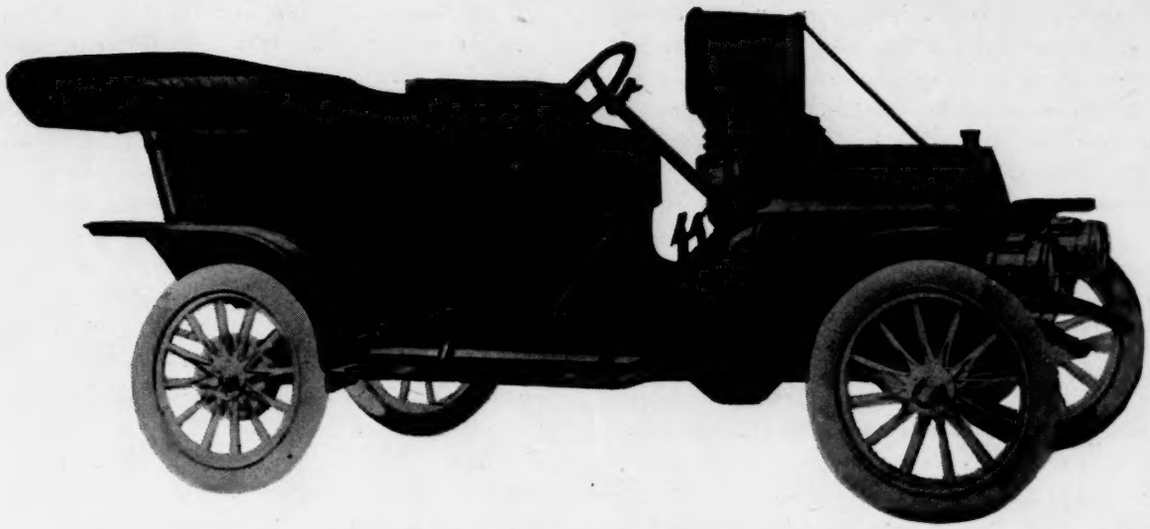
By the end of World War I it was obvious that motor vehicles were the transportation of the future. The Marines had seen motor vehicles used logistically in France. They had seen the tactical use to which Gallieni put the Paris taxi cabs to transport troops. They had used vehicles in some of the most difficult areas of the world. But they also understood that much remained to be done.

Following World War I, the Marine Corps was questionably blessed not only with a surplus of World War I trucks, but also with a vast stock of military motorcycles. At one time rumor was current that a motorcycle with sidecar was to be issued to each recruit upon the completion of boot training. Even as late as 1942, motorcycles were designated and rated as organic combat transportation in a Marine division. But they were road-bound, expensive, and obviously dangerous. Even in Headquarters Marine Corps, there were no cars to substitute for them.

"There being but one car operated for official use at these headquarters, it is directed that when officers take this car for business (except funerals) that they will detain them (*sic*) no longer than an hour," read a memorandum dated 4 November 1921 and signed by Gen Lejeune.

In the early 1920s there were not only insufficient vehicles, but the ones on hand were unsatisfactory. In September 1923, the East Coast Expeditionary Force, during a march to the Shenandoah Valley, used motor transport for its supply train. It was formed in column five miles behind the main body, which was made up of the 5th Marines. The second day out, the supply train was caught in a downpour of rain which soon rendered the clay-surfaced roads impassable and piled up most of the trucks in the ditches. Since the 5th Marines was five miles ahead of the supply train, it was necessary for the infantrymen to turn around and assist the trucks. Even with the help of tractors and mule teams, the vehicles progressed only by inches. It took two days to make the distance of five miles. Impressed by this, boards were convened to study the problem, but before anything conclusive could be done, all hands were ordered off to Nicaragua, and later to China.

The problem of spare parts standardization continued. Believe it or not, included in the motor transport em-



1909 Studebaker "30"—Marine Corps' first vehicle cost $3,635 (with cape top)

barked with the 3d Marine Brigade for China were no less than eighteen different models. It also is alarming to find in the records that upon embarkation much of the motor transport had to be towed to the docks for loading out. No new transportation was available and the old had to be used up. (This lesson was not taken seriously. Marine Corps World War II motor transport was towed to the docks for loading out from the San Diego area in the early part of 1942, for the very same reason.)

The purchase of a 1½-ton 1928 Graham started replacement of obsolete vehicles. This new truck had an electric starter and lights which did away with the tiresome hand cranking and flickering gas or kerosene headlights of previous models. The Graham truck was powered by a six-cylinder engine, had pneumatic tires, and was capable of passenger-car speeds. About this time an effort to gain better traction for trucks was considered when extensive tests were conducted with the Hipkins Traction Device. This traction aid was placed over the rear wheels of a truck to form a revolving track with cleats. Tests proved an increase of approximately sixty percent in traction, but the initial device was not capable of negotiating swampy ground. The Commandant ordered two sets for additional tests. One test was made in Nicaragua, and the other at Quantico. The Hipkins Traction Device, commonly known to Marines as "grousers," was used by our Pacific forces in World War II with excellent results.

Experience in China and Nicaragua made it apparent that standard types of motor transport must be selected. The question was whether to adopt a high speed tractor and trailer combination or a light, four-wheel drive vehicle of the one-ton variety for organic combat transportation. The Committee on Tanks and Transportation was appointed in 1937 for the purpose of working out a solution to this problem. The committee members, LtCol Lemuel C. Shepherd, Jr., Maj K. A. Inman, and Capt H. J. Withers, carried through an extensive program of testing and evaluating all types of combat transportation. The Marmon-Herrington Company provided additional research facilities for production planning of prototype models specifically designed for Marine Corps needs. Mr. W. W. Herrington, president of the company, gave valuable assistance to this committee, and at the request of the Commandant observed the fleet landings at Culebra, P. R., in 1938, in order to study Marine Corps transportation needs.

TWO TYPES OF EQUIPMENT, the TA-30 Marmon-Herrington high speed tractor and the ½-ton 4x4 Marmon-Herrington truck were tested during Fleet Landing Exercise No. 4 in 1938. The high speed tractor proved to be invaluable. However, observers believed that a four-wheel drive light truck would have accomplished the same results more satisfactorily, because at one time during the operation nine of the sixteen tractors were under repair. The deterioration of the rubber treads was excessive and the abrasive action in the tread rollers and mechanical friction parts required many replacements. The sixteen tractors averaged 540 miles during each of the maneuvers, while the three ½-ton, 4x4 reconnaissance vehicles averaged 1070 miles per vehicle. It was found that the truck would require an additional one-third more deck space than the tractor, but that it was possible to stow the truck combat loaded, and this could not be done with the tractor. These were the reasons why the committee decided to adopt the 4x4 vehicle transportation rather than the

high speed tractor for combat transportation. The committee report set the pattern for future procurement of motor transport for the Marine Corps. Initial procurement began immediately. It was with these vehicles that the Marine Corps launched the first offensive attack against the Japanese in the Guadalcanal campaign.

About 1941, the Marine Corps started shopping for a vehicle to replace the motorcycle and to serve as small-unit transportation. Several vehicles constructed by Marine Corps maintenance shops proved to be far short of the desired vehicle. In addition, the process of modifying existing vehicles into the smaller desired version resulted in operational and mechanical deficiencies which made further experimentation discouraging.

Early in 1941, the first prototype ¼-ton 4x4 (jeep) appeared. In order to evaluate thoroughly this vehicle, an officer was ordered by the Commandant to tour a number of stateside posts and stations with a ½-ton 4x4, a motorcycle, and a ¼-ton jeep. Upon completion of this tour and the evaluation of reports, the Commandant decided in favor of the ¼-ton jeep as unit combat transportation, a decision for which all of us have been duly grateful. During the autumn of 1941, the ¼-ton jeep was converted into an amphibian for use in carrying personnel, but it was not thoroughly tested.

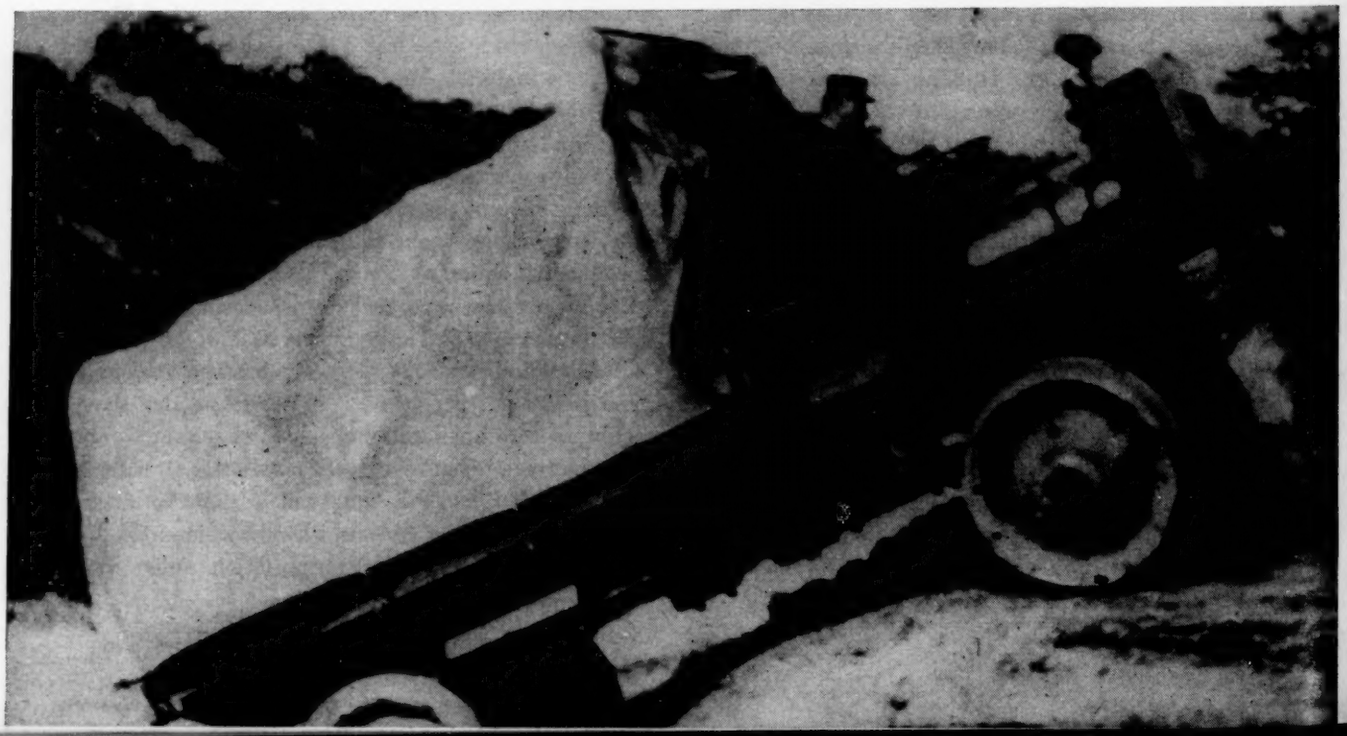
In June 1941, the Marine Corps recognized a definite need for cargo transportation which would accommodate a larger payload and afford better traction for difficult terrain operations. This in turn led to the development of the 2½-ton 6x6 M5HS truck. The Marine Corps was presented the first prototype model in December of 1941, at which time tests were conducted at Virginia Beach and at Quantico. With minor modifications after testing, the M5HS was placed in full production. The only vehicle for which the Marine Corps can accept full credit, this vehicle was also adopted by the Bureau of Aeronautics and the Bureau of Yards and Docks as standard cargo transportation in 1943. It is rightfully recognized as the work and effort of BrigGen Fred S. Robillard.

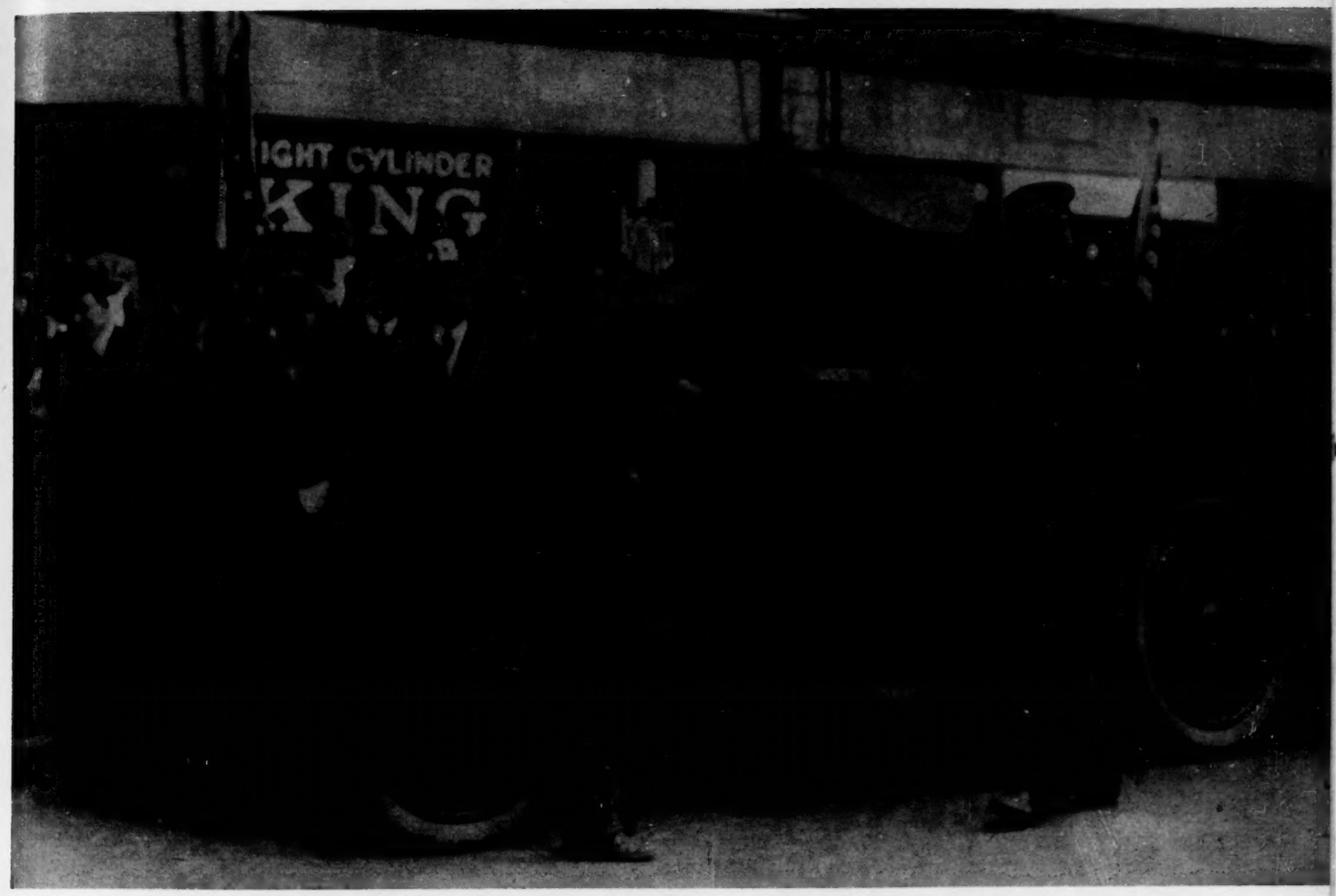
The DUKW came next, and was actually a product of World War II. Its first use by the Marine Corps was in September 1943 in the Ellice Islands where it proved itself superior to landing craft previously used in general cargo unloading. By actual experiment, it was found that the DUKW could unload twenty-two tons of cargo from a hold in an hour, as compared to a landing craft's six tons. Hence, early in 1944, Marine Corps DUKW companies were organized. Their first use was in the Marianas operation where they proved to be invaluable.

The "Weasel," a light, track-laying cargo carrier, was developed in the spring of 1942 for military operations against the Germans in Norway. When these operational plans were cancelled a limited number of the first model, T-15 (later standardized as the cargo-carrier, M-29) was made available to the services for testing and evaluation. Its power train, bogie-wheels, track suspension, and cargo compartment, plus its ability to operate in snow, mud, swamps, and marshes made the Weasel a very desirable vehicle. It was used by the Marine Corps in the Pacific for evacuation of casualties, wire laying, and for the supply of combat units.

Maintenance problems of the Weasel at times became enormous. The development of correct driver skills, such as moving over soft muddy obstacles slowly in reverse, and folding up the track aprons to prevent damage or fouling when crossing swampy terrain, provided a partial solution. Track failure was the most serious maintenance

Jeffry quad truck—the driver steered all four wheels





King armored car—good at recruiting, but a dud in the field

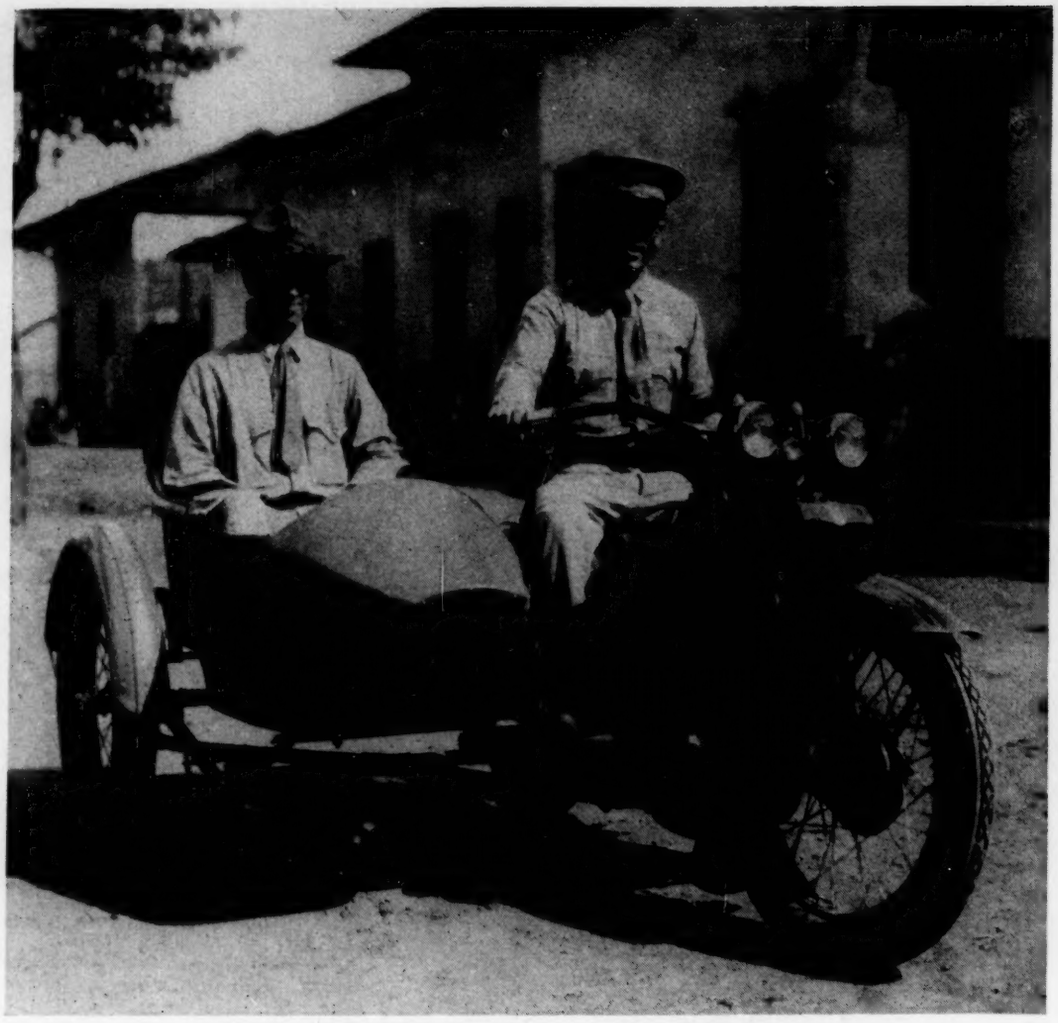
problem. Early vehicles had only a 1000-mile track life. Recent research has extended the track life to 3000 miles by actual field tests. But even now a total of fifty-eight fittings must be greased to guarantee the proper operation of the track system.

Guadalcanal will always be remembered by motor transport men of the Corps as the schooling operation for World War II. Soon after the initial landings, we found that insufficient vehicles were provided to support logistical requirements. In this operation we were blessed with the "gift" of some forty Japanese two-wheel drive, 2½-ton trucks. But even during periods of good operating conditions, it was necessary to borrow vehicles from the artillery and other units in order to move supplies off the beaches and keep the division supply train in operation.

We also were unprepared to maintain in the field what transportation we had. Repair sections and their vital equipment, including spare parts, were not landed until more than two months after the initial landing, in spite of the number of requests for them. This lack of spare parts made it impossible to keep all vehicles operating when they were most sorely needed. The demands for motor transport were enormous, but never at any time during this operation could the 1st Mar Div make available more than thirty percent of the allowance of large cargo trucks. Instead of this problem being solved as the operation progressed, the situation became more acute. Additional troops arrived and they, too, had left their heavy transportation in the rear areas.

To sum up, the following lessons in motor transport were learned in the first Marine Corps offensive operation of World War II:

1. The ¼-ton 4x4 was the most efficient combat vehicle for supply of forward combat areas.
2. Full allowances of vehicles for various units of a Marine division were necessary for effective supply.
3. The M5H6 2½-ton 6x6 was an excellent cargo vehicle for operation over difficult terrain.
4. It is essential that some repair facilities be landed in the early stages of an operation.
5. An adequate supply of spare parts must be maintained in base depots and replenishments must be shipped



Scuttlebutt hinted each recruit would get one

regularly to the forward elements.

6. Captured vehicles should not be taken over by the unit first seizing them, but should be delivered to the division motor transport officer.

7. An adequate system of waterproofing will not only help in surf assault landings, but waterproofing the distributor, the coil, and the remainder of the ignition system will greatly reduce the number of motor vehicles deadlined because of wet weather "ground out."

In the Guadalcanal campaign, motor transport personnel realized the need for a standing operating procedure. Each motor transport officer, taking the lessons of Guadalcanal as a guide, formulated a detailed SOP for future operations. All in all, much progress was made between campaigns.

Action reports from the 4th Mar Div regarding motor transport operations on Iwo Jima stated that for the first time adequate transportation, with the exception of ¼-ton ambulances, was embarked. Here too, we find the best use of the M-29 Weasel to date. Combat action reports gave high praise to this vehicle because of its ability to operate where adequate roads did not exist. Recommendations from the 4th Mar Div stated that the Weasel should be assigned to the infantry regiment as organic transportation for use in the weapons company, communications platoons, aid stations, and supply sections.

In planning for the Okinawa campaign, it was foreseen that after the initial beachheads had been secured, major problems of tactical and logistical motor transport, imposed by operations on a large land mass over a poor road net, would be encountered. With this thought in mind full allowances of transportation were embarked in the task fleet. Due to light resistance encountered on the beaches and the subsequent lack of enemy resistance inland, a need for large cargo trucks became evident very early in the operation. The tactical loading of motor transport did not anticipate the light resistance encountered, and as a result the full complement of embarked

cargo transportation was not landed until Love Day plus fourteen.

Once ashore, motor transport's troubles really began. Unusually heavy spring rains turned Okinawa's poor road net into a quagmire, and the long distances between supply points and the front lines taxed to the limit a motor transport designed for amphibious operations.

On Okinawa, the DUKWS' combat role was confined to carrying ammunition to the artillery batteries during the assault on the main Shuri-Naha line. However, they proved indispensable in getting men and supplies over the dangerous reefs surrounding the landing areas. Deep holes and pockets made the reefs doubly hazardous, and many a DUKW ended up with a broken spring or propeller shaft as a result of lurching into these hidden obstacles. (The holes, incidentally, had been dug by the islanders, not as obstacles, but as burial tombs.) When the last organized resistance had ceased, the DUKW companies were required to work even harder. The island was the proposed site of some twenty-three airfields, and the DUKWS were assigned the mission of unloading the vital supplies for these airfields.

AFTER THE OKINAWA operation, the plans for the invasion of the Japanese homeland provided for the use of six Marine divisions on a large land mass. Based on the operations on the limited land masses of Guam, Saipan, Tinian, and Okinawa, it is the author's opinion that the Marine Corps would have been logistically embarrassed in its attempt to support its operations with organic motor transport.

There is no question that World War II left a serious and unsolved problem—that of maintenance. Therefore, it is evident that future vehicle design and components must be directed towards ease of maintenance.

The concept of a "power package" assembly is modern and radical. The power package consists of the cooling system, engine, clutch, transmission, and transfer case. All is replaceable as one unit; that is its real asset. Current tests performed at Fort Knox have proven the power package may be changed in about one hour. One can realize readily the labor saving and vehicle availability increase in combat that would result with the final acceptance of the power package for all military vehicles.

The three interim vehicles developed for current production represent a bold attempt to incorporate the latest developments in the "ease of maintenance" program into wheeled military vehicles. The new features of these vehicles include:

1. A standard 24-volt electrical system plus an electrical suppression system to prevent interference with radar and other electronic operations.

2. Waterproofing of electrical and chassis units to permit shallow and deep-water fording.

3. Provision for vehicle operation at temperatures as low as minus 65 degrees and as high as 165 degrees.

4. Replacement unit assemblies, including the power package.

5. Facilities for adapting vehicles for air transport.

Mechanical design and operation improvements include: Greater ease in cross-country operation, ease of maintenance features to reduce deadline time, greater standardization of parts, better fuel economy for large trucks, and standard production components including engines, clutches, transmissions, axles, brakes, and other chassis parts.

Our new vehicles are definitely the answer to the problem of waterproofing vehicles for amphibious operations. During the tests of these vehicles by the Marine Corps Equipment Board at Quantico, the Reo M34, 2½-ton 6x6 cargo truck was prepared for deep-water wading by the driver in ten minutes. After wading in five to seven feet of water for a period of about thirty minutes, the vehicle was inadvertently driven into water so deep that the driver had to abandon the vehicle. Only the snorkel (air intake) and the snorter (exhaust) tubes were above water, and in this position, with the transmission in neutral, the vehicle ran for a period of approximately fifty-six minutes. Although it required two LVTs to pull the vehicle out of its mud-mired bed, it was again started on the beach in a minute or two.

In addition to the M34, the M37, ¾-ton 4x4 made by Dodge and the M38, ¼-ton 4x4 made by Willys, round out the present production plans for vehicles. The Marine Corps has received an initial allotment of these vehicles and plans will soon be forthcoming for substitution in the present Table of Equipment.

Few realize the leading role currently being played by Marine Corps motor transport in the Korean action. Again Marine Corps transport is being employed in a manner which current T/Os and T/Es obviously never contemplated. Marines in Korea have much praise for what has been done and many suggestions about what ought to be done. Much has been learned about the problems of motor transport operations over a large land mass, through dust and snow, over roads that are actually only trails, and along main supply routes which bear more resemblance to a main line of resistance than anything else. In this war motor transport has been operating continually under enemy fire.

In future operations, whether in Korea or in some other equally difficult theater, the importance of motor transport will continue to grow. Constant improvements are being made to existing vehicles to meet the changing requirements of modern warfare. Front line troops, and supply echelons—in fact, all Marines—can look forward to even more effective support than they've had in the past. Motor transport has a roaring future ahead as the "workhorse" of the Marine Corps. USMC

Passing in Review

BOOKS OF INTEREST TO MARINE READERS

A Picture History . . .

THE HISTORY OF THE UNITED STATES MARINE CORPS—J. de M. Cirne Crane, 72 pages, Picture History. Army and Navy Publishing Co. 1952. $1.00

From the recruiting office at Tun Tavern to the foxholes of "Operation Desert Rock Four"—that is the span of Marine Corps history covered in this recently published book which is sold under the auspices of the Marine Corps War Memorial Foundation. This history is, in effect, a double bargain. In the first place, the buyer gets a good book for his money. In the second place, the profits from the sale of the book will assist in raising that magnificent Marine Corps Memorial statue which is to serve as an everlasting tribute to the Marines of all wars who have given their lives in defense of our country.

The first few pages of *The History of the United States Marine Corps* are devoted to the highlights and better known events of the many wars, large and small, in which Marines have fought. These few pages contain much of the textual matter in the entire book. The remainder is devoted principally to pictures, many of which have not been published before.

Though the general history coverage is brief, a number of interesting details are included. Marine readers are bound to think a bit about the tremendous changes which have come about since Marines carried out their first landing operation, storming ashore at New Providence in the Bahamas in 1776 to capture military stores which were so badly needed by the Continental forces. The details also show that some of the boys in "the old Corps" had things pretty tough. For example, the story reveals that the Marines who served with John Paul Jones suffered fifty per cent casualties in the encounter between the *Bon Homme Richard* and the *Serapis!*

The general history narrative continues on through Chapultepec, the War Between the States, the Spanish-American War, the Boxer Rebellion, World War I, Nicaragua, World War II, and finally Korea. Woven in among these events are the stories of O'Bannon and Lejeune and other great Marines, as well as passages on the meanings of our hat and collar ornaments and our motto.

The remainder of the book is devoted primarily to photographs and drawings arranged by subject to cover our entire Marine history. There are brief texts about the Marine Hymn, the Marine Band, Women Marines, the Fleet Marine Force, Marine Aviation, Marine Corps Schools, Marine Reserves, some posts and stations of the Corps, Korea, and the Marine Memorial.

The picture captions are well done, though in most cases each picture is easily "worth ten thousand words."

Through the cooperation of Defense Department photo files, the Library of Congress, some well known newspapers, and some private sources, the author has rounded up a fine collection of photos and prints which will be as interesting to John Doe, civilian, as to Richard Roe, Marine.

The criticisms of this book are boiled down to two. First, there just isn't enough of it—though one surely gets enough for his money. The history is too brief even though it is well written. Marines will regret that several important engagements are given only passing reference. The Cape Gloucester action of the 1st Division is covered

in a short, four-line paragraph. The second criticism is not fatal, however. It would seem that the Marine Corps Memorial Foundation might have been given more space in the book in order for it to be described more fully. Many people will see and read this book who are not aware of just what the Foundation is trying to accomplish.

This latest history of the Marine Corps should go over very well with Marines and the general public alike. It's a good book at a bargain price for a worthy cause. How many other history books have three such assets at the start?

Reviewed by Maj Lawrence F. Snoddy, Jr.

Enemies of Democracy . . .

THE BATTLE AGAINST DISLOYALTY—Nathaniel Weyl. 342 pages. New York: Thomas Y. Crowell Company. $3.75

There has been, throughout the 175 years of American history, a successful battle waged against the challenge of sedition, disloyalty, and espionage. Herein is recorded that struggle. The primary emphasis has been placed upon the importance of combating and stamping out any contemporary conspiracies.

This is not just a spine-tingling story of how the American secret service organizations have fought to protect our democracy from internal enemies. With today's struggle as a guidepost, it traces the beginnings of Communist conspiracy in America and shows what is now being done to suppress this evil.

Mr. Weyl, a resident of the nation's capital, has combined writing, travel, research, and work as an official of the United States Government. He has toured Europe, Africa, the Near East, the Orient, and has spent two years in Latin America. His writings range from the mystery novel to encyclopedia articles, and he is known for his last year's success, *Treason.*

The Battle Against Disloyalty makes an outstanding contribution to the understanding of the betrayal of American democracy from within.

Reviewed by Cpl Ruth H. Hardenbrook

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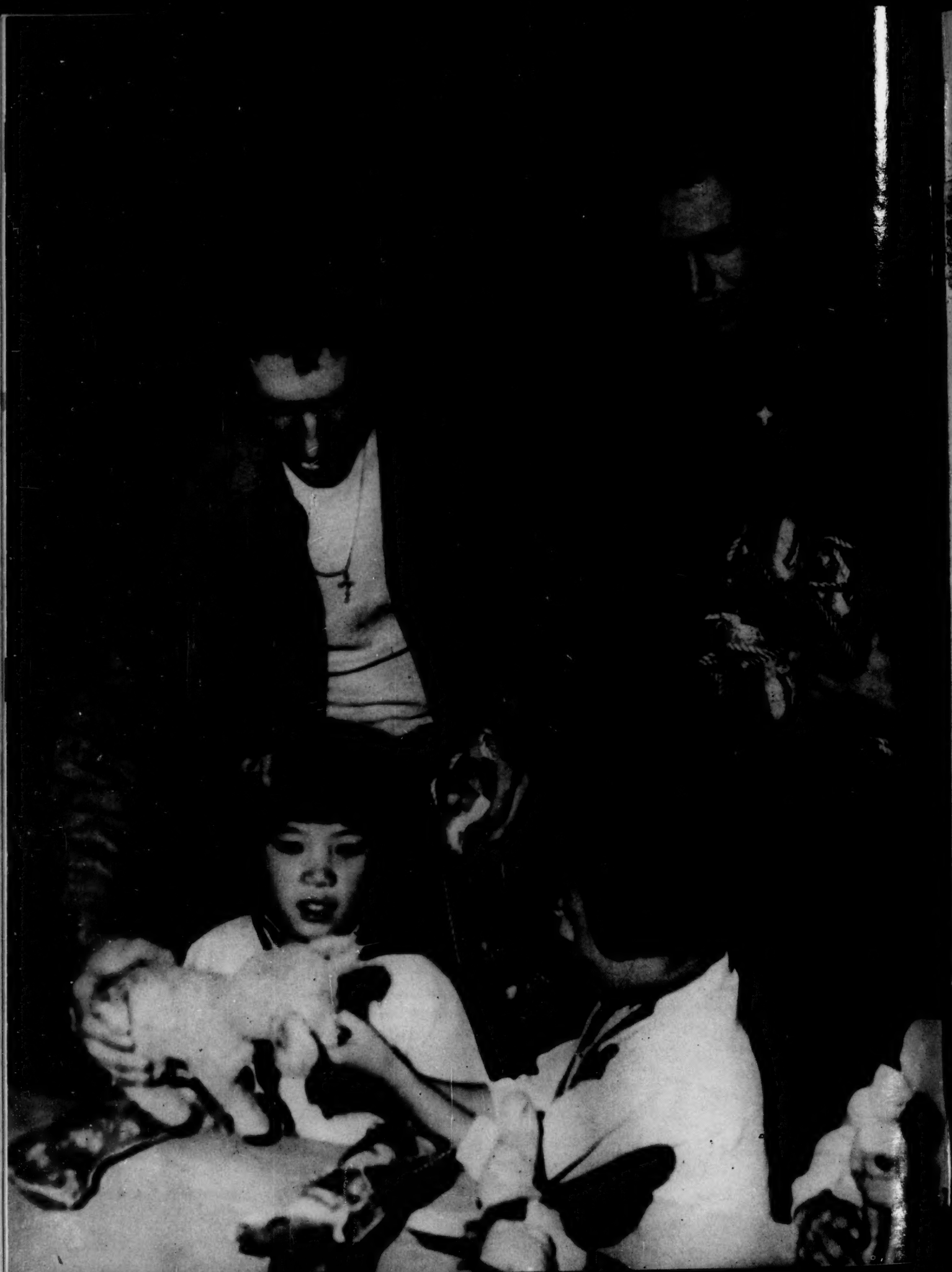
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